Micro System

MC-100
MC-105
MC-110
all versions

Service
Service
Service

Service Manual

COMPACT disc DIGITAL AUDIO

TABLE OF CONTENTS

Handling chip components 1-1
Technical specification....2-1
Service tools 2-1
Service measurement setup 2-2
Connections and controls ....3-1...3-2

Disassembly diagram 4-1
Service Test Program 4-2
Pin description of ICs....4-3...4-4
Set block diagram 5-1
Set wiring diagram 5-2

LED BOARD
circuit diagram 6-1
layout diagram 6-1

FRONT BOARD
circuit diagram 7-1
layout diagram 7-2

TUNER BOARD (ECO6 cenelec)
circuit diagram 8-1
layout diagram 8-2
tuner adjustment table 8-2

TUNER BOARD (ECO6 non cenelec)
circuit diagram 8-3
layout diagram 8-4
tuner adjustment table 8-4

MTF TAPE DECK MODULE
circuit diagram 9-1
layout diagram 9-2
tape deck adjustment....9-2

COMBI BOARD
circuit diagram. ....10-1...10-3
layout diagram 10-4

CD MODULE (CD99-DA11)
circuit diagram 11-1, 11-3
layout diagram 11-2

POWER BOARD
circuit diagram 12-1
layout diagram 12-1

Exploded view diagram (main set) ....13-1...13-2
Exploded view diagram (tape deck)....13-2
Mechanical partslist 13-3

Electrical partslist....14-1...14-16

CLASS 1□
LASER PRODUCT

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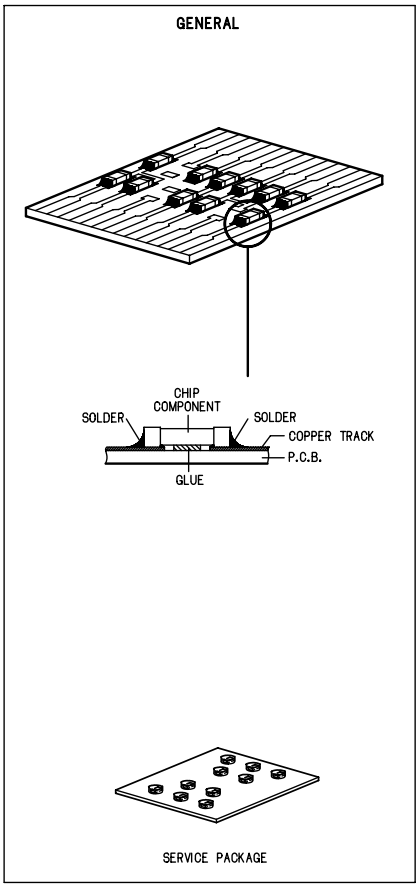
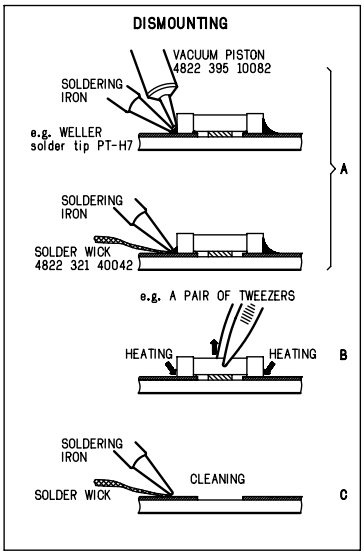
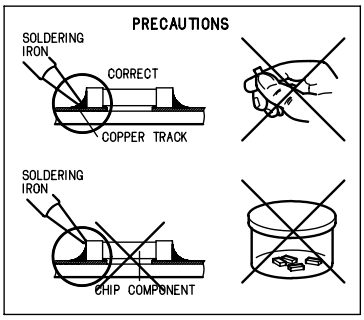
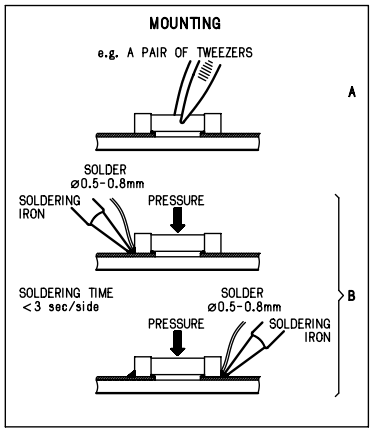
PHILIPS

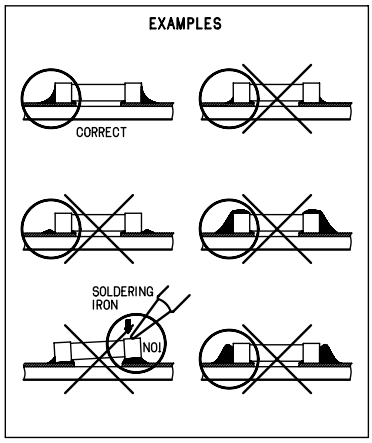
HANDLING CHIP COMPONENTS











(GB) WARNING
All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wristband with resistance. Keep components and tools at this potential.

ESD

(NL) WAARSCHUWING
Alle IC«s en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen vermindern. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) ATTENTION
Tous les IC et beaucoup d«autres semi-conducteurs sont sensibles aux d charges statiques (ESD). Leur long vite pourrait tre consid rablement court e par le fait qu«aucune pr caution n st prise leur manipulation.
Lors de r parations, s«assurer de bien tre reli au m me potentiel que la masse de l«appareil et enfileer le bracelet serti d«une r sistance de s curit .
Veiller ce que les composants ainsi que les outils que l«on utilise soient galement ce potentiel.

(D) WARNUNG
Alle ICs und viele andere Halbleiter sind empfindlich gegen ber elektrostatischen Entladungen (ESD).
Unsorgf ltige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Sorgen Sie daf r, da§ Sie im Reparaturfall ber ein Puls-armband mit Widerstand mit dem Massepotential des Ger tes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(I) AVVERTIMENTO
Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevit potrebbe essere fortemente ridatta in caso di non osservazione della pi grande cauzione alla loro manipolazione. Durante le riparationi occorre quindi essere collegato allo stesso potenziale che quello della massa del pparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

SAFETY

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.
Safety components are marked by the symbol ⚠

(F)
Les normes de s curit exigent que l'appareil soit remis l' tat d'origine et que soient utilis es les pi ces de rechange identiques celles sp cifi es.
Les composants de s curit sont marqu s ⚠

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvor-schriften zu beachten. Der Originalzustand des Ger tes darf nicht ver ndert werden. F r Reparaturen sind Original-ersatzteile zu verwenden.
Sicherheitsbauteile sind durch das Symbol ⚠ markiert.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.
De Veiligheidsonderdelen zijn aangeduid met het symbool ⚠

(I)
Le norme di sicurezza estigono che l«apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.
Componenty di sicurezza sono marcati con ⚠

CLASS 1
LASER PRODUCT

DANGER: Invisible laser radiation when open.
AVOID DIRECT EXPOSURE TO BEAM.

(S) Varning !
Osynlig laserstr lning n r apparaten r ppnad och sp rren r urkopplad. Betrakta ej str len.

(DK) Advarsel !
Usynlig laserstr ling ved bning n r sikkerhedsafbrydere er ude af funktion. Undg udsaettelse for str ling.

(FIN) Varoitus !
Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina n kym tt m lle laseris teilylle. l katso s teeseen !

(GB)
After servicing and before returning the set to customer perform a leakage current measurement test from all exposed metal parts to earth ground, to assure no shock hazard exists.
The leakage current must not exceed 0.5mA.

(F)
"Pour votre s curite, ces documents doivent tre utilis s par des sp cialistes agr s, seuls habilit s r parer votre appareil en panne".

TECHNICAL SPECIFICATIONS

GENERAL

Mains voltage	-/21/21M	:	120 / 230 V
	-/22/30/33	:	230 V
	/37	:	120 V
Mains frequency	-/22/30/33	:	50 Hz
	-/21/21M	:	50 / 60 Hz
	/37	:	60 Hz
Battery	remote	:	3 V (R6 x 2)
Power consumption	normal	:	40 W
	Standby	:	3 W
Dimension (W x H x D)		:	223 x 140 x 247 mm
Weight		:	5.6 Kg

AMPLIFIER

Output power	mains	:	2 x 4 W
Speaker impedance		:	2 x 8 ohm
Frequency response		:	100 Hz - 10 kHz (±4dB)

TUNER - FM SECTION

Tuning range		:	87.5 - 108 MHz
IF frequency		:	10.7 MHz ± 0.02 MHz
Sensitivity		:	16 dBf at 26dB S/N
Selectivity	300kHz	:	55 dB
IF suppression		:	85 dB
Image suppression		:	40 dB
Channel separation	1kHz	:	28 dB

TUNER - AM SECTION

Tuning range	MW	:	531 - 1602 kHz
	-/37	:	530 - 1700 kHz
Tuning range	LW	:	153 - 279 kHz
IF frequency		:	450 kHz ± 1 kHz
Sensitivity	MW	:	≤ 3.5 mV/m at 26dB S/N
	LW	:	≤ 4.2 mV/m
Selectivity	MW	:	< 22 dB
	LW	:	< 35 dB
IF rejection	MW	:	< 64 dB
Spurious rejection ratio	MW	:	< 58 dB
	LW	:	< 51 dB
Image rejection ratio	MW	:	< 40 dB
	LW	:	< 47 dB

AUDIO CASSETTE RECORDER

Frequency response		:	120 - 10000 Hz
Wow & flutter		:	0.4 % (DIN)
Tape speed		:	4.76 cm/s ± 2 %
Fast winding time		:	110 sec.
Channel difference	1kHz	:	< 3 dB
S/N ratio (unw.)		:	40 dB
S/N ratio (wght.)		:	48 dB

COMPACT DISC

Frequency response		:	20Hz – 20kHz within 1.5dB
S/N ratio (unw.)		:	> 85 dB
S/N ratio (A-wght.)		:	> 90 dB
THD+N	1 kHz	:	> 72 dB
Channel crosstalk		:	> 50 dB
Channel unbalance		:	< ±1 dB

SERVICE TOOLS

TORX T10 screwdriver with shaftlength 150mm.....4822 395 50423
TORX screwdriver set SBC 163.....4822 295 50145

Audio signal disc SBC 429.....4822 397 30184
Playability test disc SBC 444.....4822 397 30245
Test disc 5 (disc without errors) +
Test disc 5A (disc with dropout errors, black spots and fingerprints)
SBC 426/426A.....4822 397 30096
Burn in test disc (65 min. 1kHz signal at -30 dB level without “pause”).....4822 397 30155

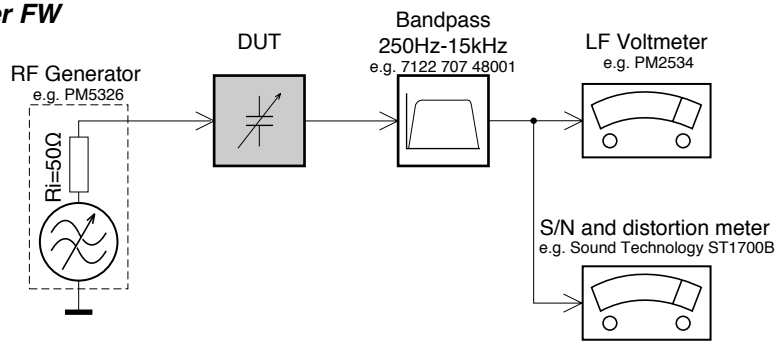
Universal test cassette Fe SBC 420.....4822 397 30071

AVAILABLE ESD PROTECTION EQUIPMENT

anti-static table mat	large	1200x650x1.25mm	4822 466 10953
	small	600x650x1.25mm	4822 466 10958
anti-static wristband			4822 395 10223
connection box (3 press stud connections, 1MΩ)			4822 320 11307
extendible cable (2m, 2MΩ, to connect wristband to connection box)			4822 320 11305
connecting cable (3m, 2MΩ, to connect table mat to connection box)			4822 320 11306
earth cable (1MΩ, to connect any product to mat or to connection box)			4822 320 11308
KIT ESD3 (combining all 6 prior products - small table mat)			4822 310 10671
wristband tester			4822 344 13999

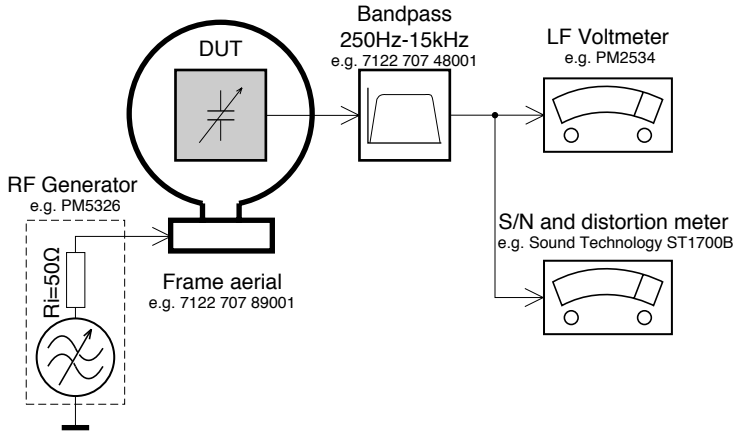
SERVICE MEASUREMENT

Tuner FW



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).

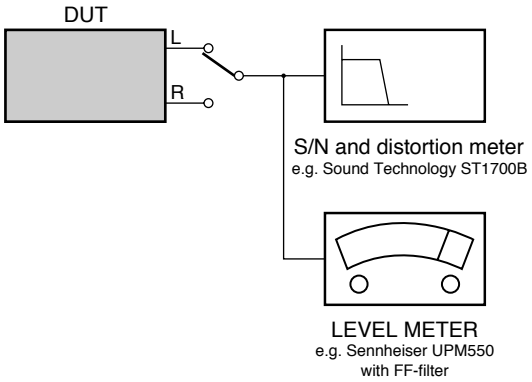
Tuner AM (MW,LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday´s cage.
Use a bandpass filter (or at least a high pass filter with 250kHz) to eliminate hum (50Hz, 100Hz).

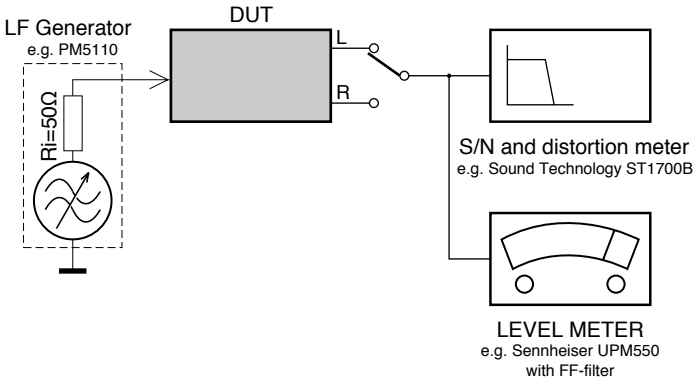
CD

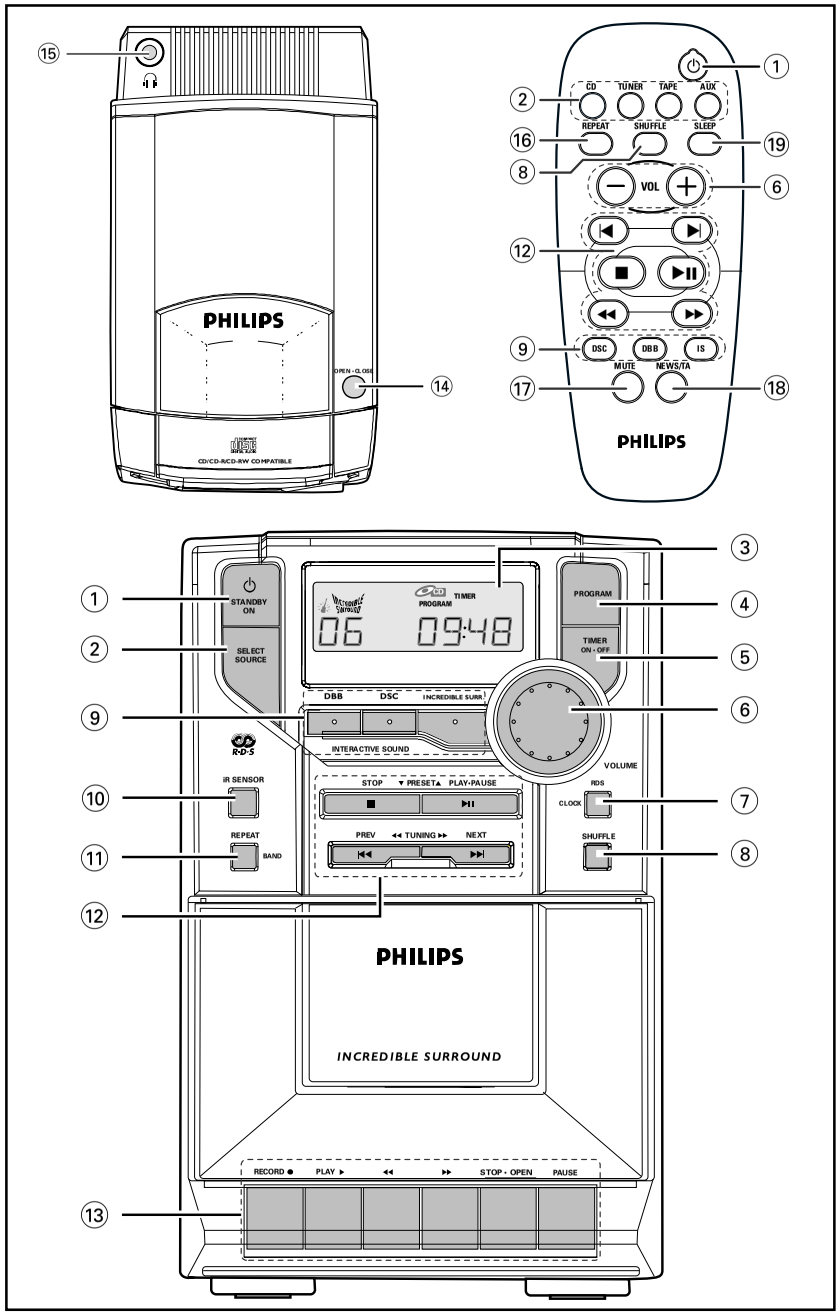
Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)



RECORDER

Use Universal Test Cassette **Fe** SBC420 4822 397 30071





Controls *(illustrations on page 3)*

Controls on the system and remote control

① **STANDBY ON** ⏻
– switches the system to standby/on.
– *on the remote control only* - switches the system to standby.

② **SELECT SOURCE**
– selects the respective sound source for CD/ TUNER/ TAPE /AUX.
– switches on the system.

③ **Display**
– shows the status of the system.

④ **PROGRAM**
for CD ..... programmes tracks and reviews the programme.
for Tuner ..... programmes tuner stations manually or automatically.

⑤ **TIMER ON•OFF**
– activates/deactivates or sets the timer function.

⑥ **VOLUME (VOL −/+)**
– adjusts the volume level.
– *on the system only* - adjusts the hour and minutes for the clock/timer functions.

⑦ **CLOCK / RDS**
for Tuner ..... displays RDS information.
for Clock ..... sets the clock function.

⑧ **SHUFFLE**
– plays CD tracks in random order.

⑨ **INTERACTIVE SOUND controls:**
DBB ..... (Dynamic Bass Boost) enhances the bass.
DSC ..... (Digital Sound Control) selects sound characteristics: OPTIMAL/ ROCK/JAZZ/POP.
INCREDIBLE SURR. (IS) ..... creates a super-enhanced stereo effect.

⑩ **iR SENSOR**
– infrared sensor for remote control.

⑪ **REPEAT / BAND**
for CD ..... repeats a track/CD programme/ entire CD.
for Tuner ..... selects waveband.

⑫ **Mode Selection**
STOP ■ ..... stops CD playback or erase a CD programme.
PLAY•PAUSE ▶II ..... starts or interrupts CD playback.
PRESET ▼▲
(|◀, ▶|) ..... selects a preset radio station.
PREV |◀◀ / NEXT ▶▶|
(|◀, ▶|) ..... skips to the beginning of a current track/previous/ subsequent track.
(◀◀, ▶▶) ..... fast searches back and forward within a track/CD.
TUNING ◀◀ ▶▶
(◀◀, ▶▶) ..... tunes to radio stations.

⑬ **Tape Deck Operation**
RECORD ..... starts recording.
PLAY ▶ ..... starts playback.
◀◀ / ▶▶ ..... fast rewinds/winds the tape.
STOP•OPEN ...stops the tape; opens the tape compartment.
PAUSE ..... interrupts recording or playback.

⑭ **OPEN•CLOSE**
– opens/closes the CD door.

⑮ 🎧
– connect headphones.

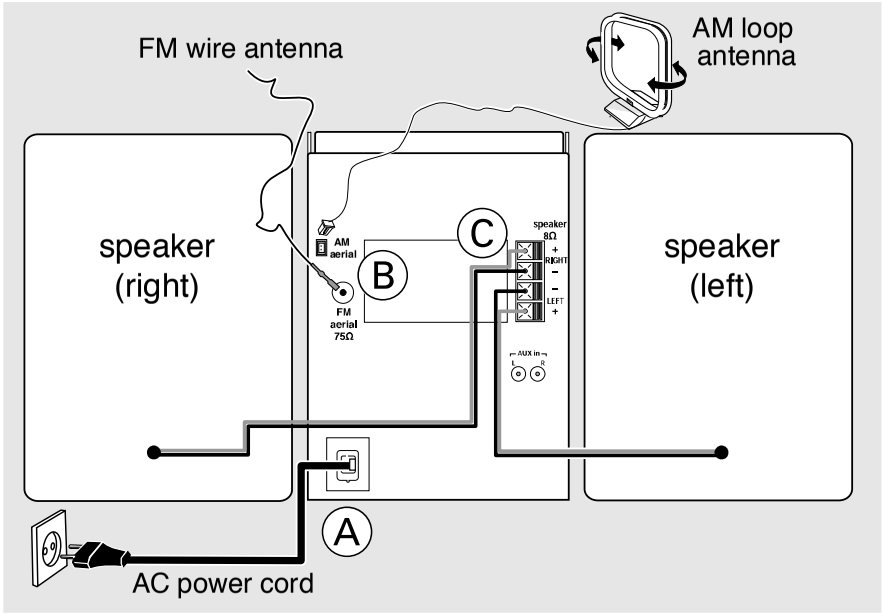
⑯ **REPEAT**
– repeats a track/CD programme/ entire CD.

⑰ **MUTE**
– interrupts and resumes sound reproduction.

⑱ **NEWS/TA**
– activates RDS news and Traffic Announcement.

⑲ **SLEEP**
– activates/deactivates or selects the sleeper time.

Notes for remote control:
– First select the source you wish to control by pressing one of the source select keys on the remote control (for example CD , TUNER).
– Then select the desired function (for example ▶, |◀, ▶|).



Rear connections

The type plate is located at the rear of the system.

Ⓐ **Power**

Before connecting the AC power cord to the wall outlet, ensure that all other connections have been made.

WARNING!

– For optimal performance, use only the original power cable.

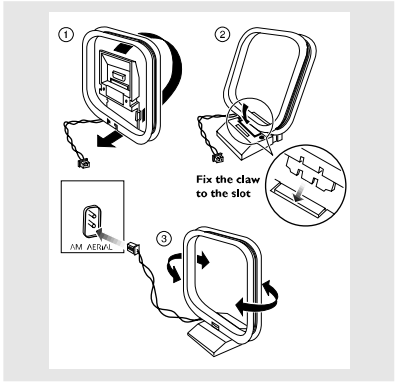
– Never make or change any connections with the power switched on.

To avoid overheating of the system, a safety circuit has been built in. Therefore, your system may switch to Standby mode automatically under extreme conditions. If this happens, let the system cool down before reusing it *(not available for all versions)*.

Ⓑ **Antennas Connection**

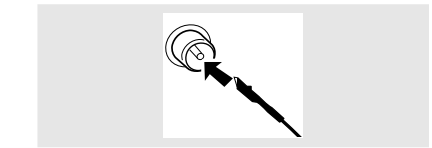
Connect the supplied AM loop antenna and FM antenna to the respective terminals. Adjust the position of the antenna for optimal reception.

AM Antenna



- Position the antenna as far as possible from a TV, VCR or other radiation source.

FM Antenna

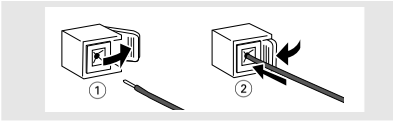


- For better FM stereo reception, connect an outdoor FM antenna to the FM AERIAL (FM ANTENNA) terminal.

Ⓒ **Speakers Connection**

Front Speakers

Connect the speaker wires to the SPEAKERS terminals, right speaker to "**RIGHT**" and left speaker to "**LEFT**", coloured (marked) wire to "**+**" and black (unmarked) wire to "**–**".



- Fully insert the stripped portion of the speaker wire into the terminal as shown.

Notes:

– For optimal sound performance, use the supplied speakers.

– Do not connect more than one speaker to any one pair of + / – speaker terminals.

– Do not connect speakers with an impedance lower than the speakers supplied. Please refer to the SPECIFICATIONS section of this manual.

Optional connection

The optional equipment and connecting cords are not supplied. Refer to the operating instructions of the connected equipment for details.

Connecting other equipment to your system

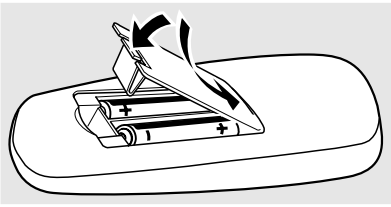
Connect the audio left and right OUT terminals of a TV, VCR, Laser Disc player, DVD player or CD Recorder to the **AUX IN** terminals.

Note:

– If you are connecting equipment with a mono output (a single audio out terminal), connect it to the AUX IN left terminal. Alternatively, you can use a "single to double" cinch cable (the output sound still remain mono).

Inserting batteries into the remote control

Insert two batteries (not supplied) type R03 or AAA into the remote control with the correct polarity as indicated by the "**+**" and "**–**" symbols inside the battery compartment.



CAUTION!

– Remove batteries if they are exhausted or will not be used for a long time.

– Do not use old and new or different types of batteries in combination.

– Batteries contain chemical substances, so they should be disposed off properly.

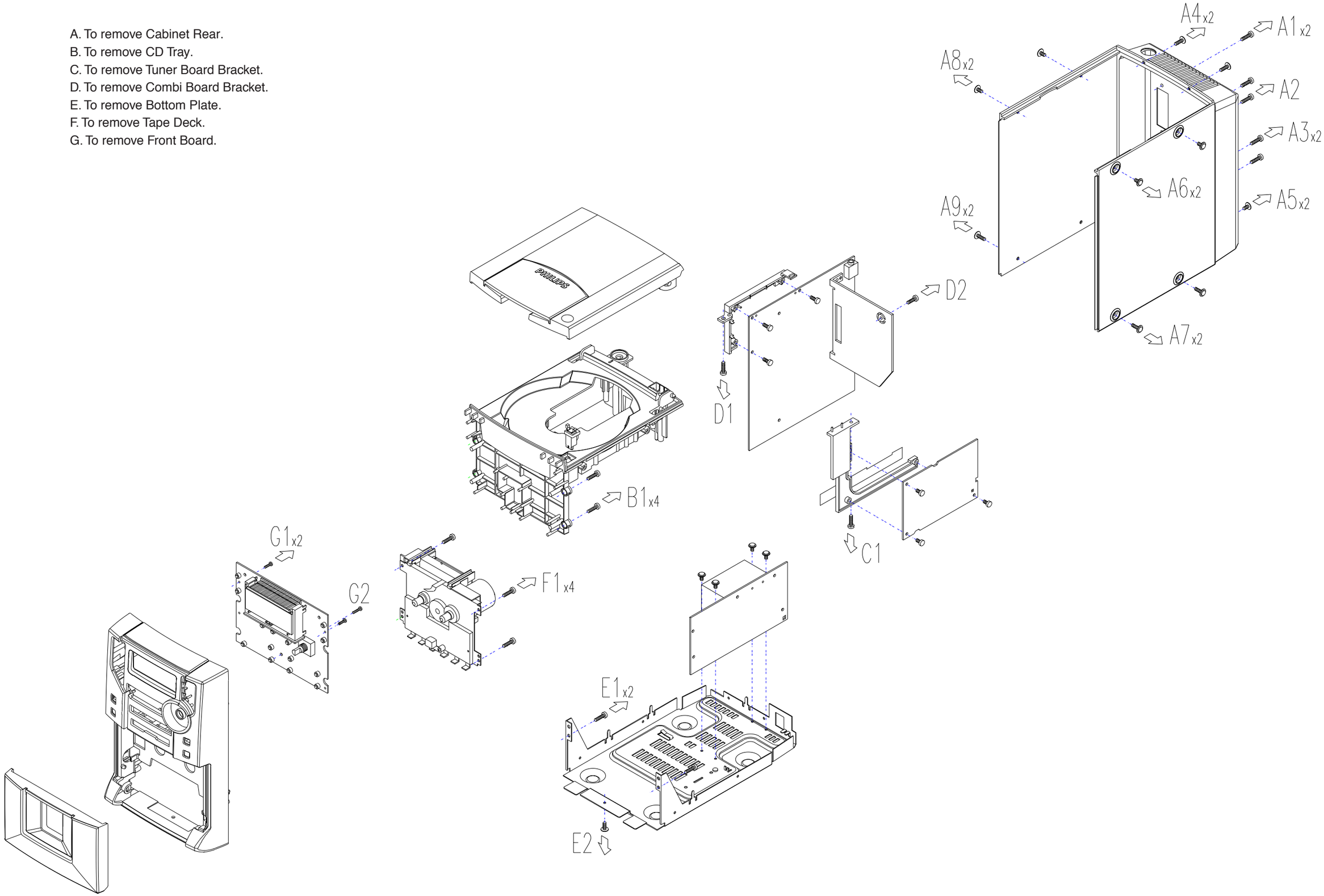
For more information onoperation instruction please visit Philips Audio internet site :

http://www.audio.philips.com

4 - 1

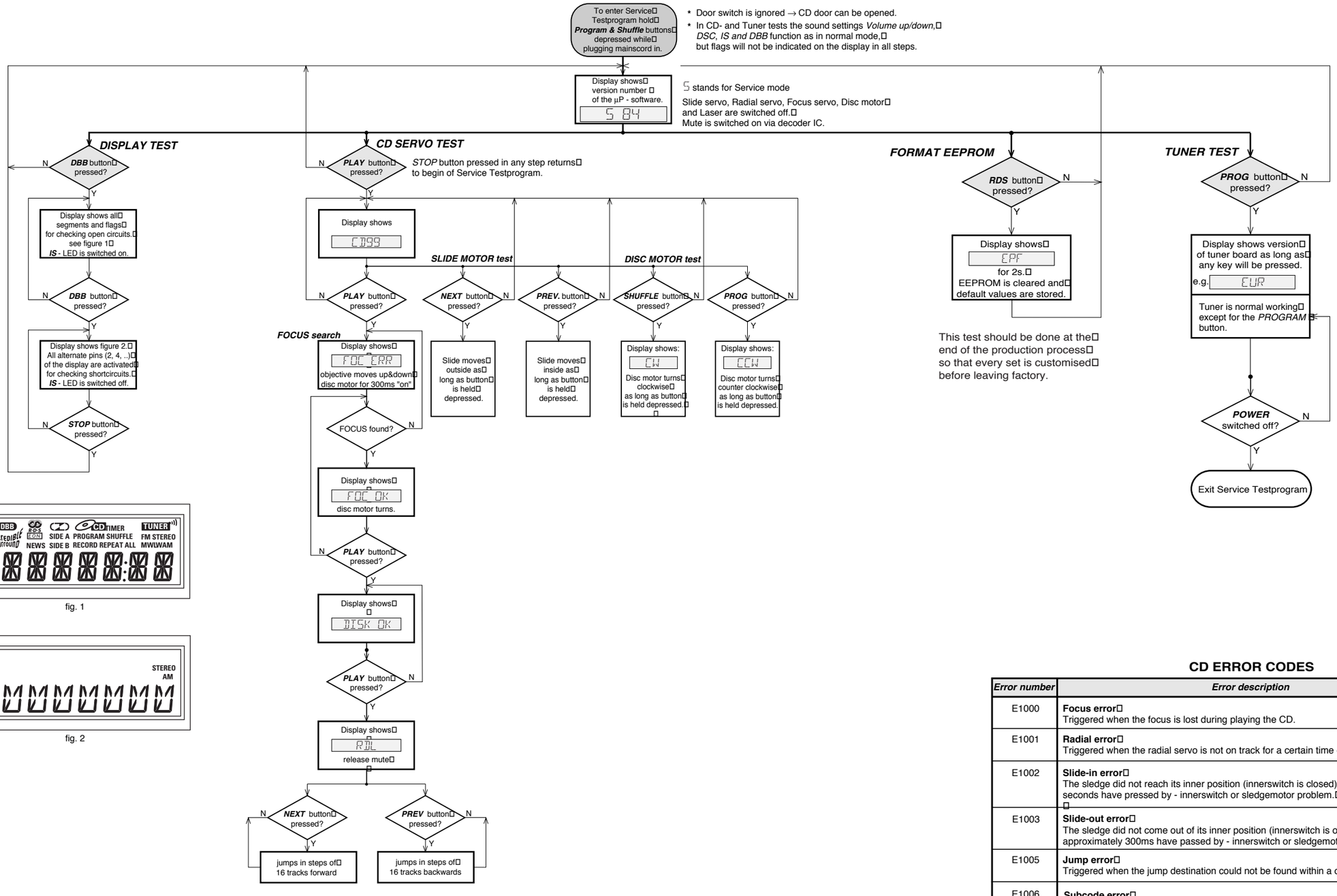
DISASSEMBLY DIAGRAM

A. To remove Cabinet Rear.
B. To remove CD Tray.
C. To remove Tuner Board Bracket.
D. To remove Combi Board Bracket.
E. To remove Bottom Plate.
F. To remove Tape Deck.
G. To remove Front Board.



4 - 2

CD SERVICE TEST PROGRAM


To enter Service Testprogram hold Program & Shuffle buttons depressed while plugging mainscord in.
* Door switch is ignored → CD door can be opened.
* In CD- and Tuner tests the sound settings Volume up/down, DSC, IS and DBB function as in normal mode, but flags will not be indicated on the display in all steps.
Display shows version number of the µP - software.
5 84
5 stands for Service mode
Slide servo, Radial servo, Focus servo, Disc motor and Laser are switched off.
Mute is switched on via decoder IC.
DISPLAY TEST
DBB button pressed?
Display shows all segments and flags for checking open circuits. see figure 1
IS - LED is switched on.
DBB button pressed?
Display shows figure 2. All alternate pins (2, 4, ..) of the display are activated for checking shortcircuits.
IS - LED is switched off.
STOP button pressed?
CD SERVO TEST
PLAY button pressed?
STOP button pressed in any step returns to begin of Service Testprogram.
Display shows
C199
SLIDE MOTOR test
DISC MOTOR test
PLAY button pressed?
NEXT button pressed?
PREV. button pressed?
SHUFFLE button pressed?
PROG button pressed?
FOCUS search
Display shows
FOC ERR
objective moves up&down disc motor for 300ms "on"
Slide moves outside as long as button is held depressed.
Slide moves inside as long as button is held depressed.
Display shows:
CW
Disc motor turns clockwise as long as button is held depressed.
Display shows:
CCW
Disc motor turns counter clockwise as long as button is held depressed.
FOCUS found?
Display shows
FOC OK
disc motor turns.
PLAY button pressed?
Display shows
DISK OK
PLAY button pressed?
Display shows
RDL
release mute
NEXT button pressed?
jumps in steps of 16 tracks forward
PREV button pressed?
jumps in steps of 16 tracks backwards
FORMAT EEPROM
RDS button pressed?
Display shows
EPF
for 2s.
EEPROM is cleared and default values are stored.
This test should be done at the end of the production process so that every set is customised before leaving factory.
TUNER TEST
PROG button pressed?
Display shows version of tuner board as long as any key will be pressed.
e.g. EUR
Tuner is normal working except for the PROGRAM button.
POWER switched off?
Exit Service Testprogram

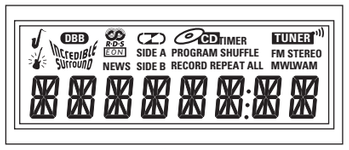


fig. 1

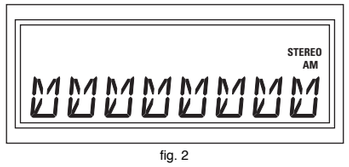


fig. 2

TUNER VERSIONS

	EUR	USA	OSE
REGION & SET VERSIONS	***EUROPE*** ***FM/MW*** /22/25	***USA*** ***FM/MW*** /37	***OVERSEAS*** ***FM/MW*** [1] Grid switchable 100/10kHz - 50/9kHz /21/21M/30

table 2

[1] To toggle frequency grid press ***SHUFFLE*** button for more than 5s in normal tuner mode (**not** in service testmode).

Display will show either GRID 9 or GRID 10 for 2 s.

CD ERROR CODES

Error number	*Error description*	*Error type*
E1000	**Focus error** Triggered when the focus is lost during playing the CD.	W
E1001	**Radial error** Triggered when the radial servo is not on track for a certain time during playing the CD.	W
E1002	**Slide-in error** The sledge did not reach its inner position (innerswitch is closed) before approximately 6 seconds have pressed by - innerswitch or sledgemotor problem.	W
E1003	**Slide-out error** The sledge did not come out of its inner position (innerswitch is open) before approximately 300ms have passed by - innerswitch or sledgemotor problem.	W
E1005	**Jump error** Triggered when the jump destination could not be found within a certain time.	W
E1006	**Subcode error** No valid subcode for a certain time during play.	W
E1007	**PLL error** The Phase-Lock-Loop could not lock within a certain time.	W
E1008	**Turntable motor error** Generated when the CD could not reach 75% of speed during start-up within a certain time. Discmotor problem.	W
E1020	**Focus search error** The focus point has not been found within a certain time.	F

table 1

Error type: W = Warning → set continues operation, message remains on the display until next error occurs or any key is pressed.

F = Fatal Error → set stops operation, message remains on the display.

4 - 3

Abbreviations and Pin-description of CD Ics

SERVO PROCESSOR SAA7325H

SYMBOL	PIN	DESCRIPTION
HFREF	1	comparator common mode input
HFIN	2	comparator signal input
ISLICE	3	current feedback output from data slicer
V_{SSA1}	4(1)	analog ground 1
V_{DDA1}	5(1)	analog supply voltage 1
I_{ref}	6	reference current output pin
V_{RIN}	7	reference voltage for servo ADC's
D1	8	unipolar current input (central diode signal input)
D2	9	unipolar current input (central diode signal input)
D3	10	unipolar current input (central diode signal input)
D4	11	unipolar current input (central diode signal input)
R1	12	unipolar current input (satellite diode signal input)
R2	13	unipolar current input (satellite diode signal input)
V_{SSA2}	14(1)	analog ground 2
CROUT	15	crystal/resonator output
CRIN	16	crystal/resonator input
V_{DDA2}	17(1)	analog supply voltage 2
LN	18	DAC left channel differential output - negative
LP	19	DAC left channel differential output - positive
V_{neg}	20	DAC negative reference input
V_{pos}	21	DAC positive reference input
RN	22	DAC right channel differential output - negative
RP	23	DAC right channel differential output - positive
SELPLL	24	selects whether internal clock multiplier PLL is used
TEST1	25	test control input 1; this pin should be tied LOW
CL16	26	16.9344 MHz system clock output
DATA	27	serial d4(1)ata output (3-state)
WCLK	28	word clock output (3-state)
SCLK	29	serial bit clock output (3-state)
EF	30	C2 error flag output (3-state)
TEST2	31	test control input 2; this pin should be tied LOW
KILL	32	kill output (programmable; open-drain)
V_{SSD1}	33(1)	digital ground 2
V2/V3	34	versatile I/O: input versatile pin 2 or output versatile pin 3 (open-drain)
WCLI	35	word clock iutput (for data loopback to DAC)
SDI	36	serial data input (for data loopback to DAC)
SCLI	37	serial bit clock input (for data loopback to DAC)
RESET	38	power-on reset input (active LOW)
SDA	39	microcontroller interface data I/O line (open-drain output)
SCL	40	microcontroller interface clock line input

Abbreviations and Pin-description of CD Ics

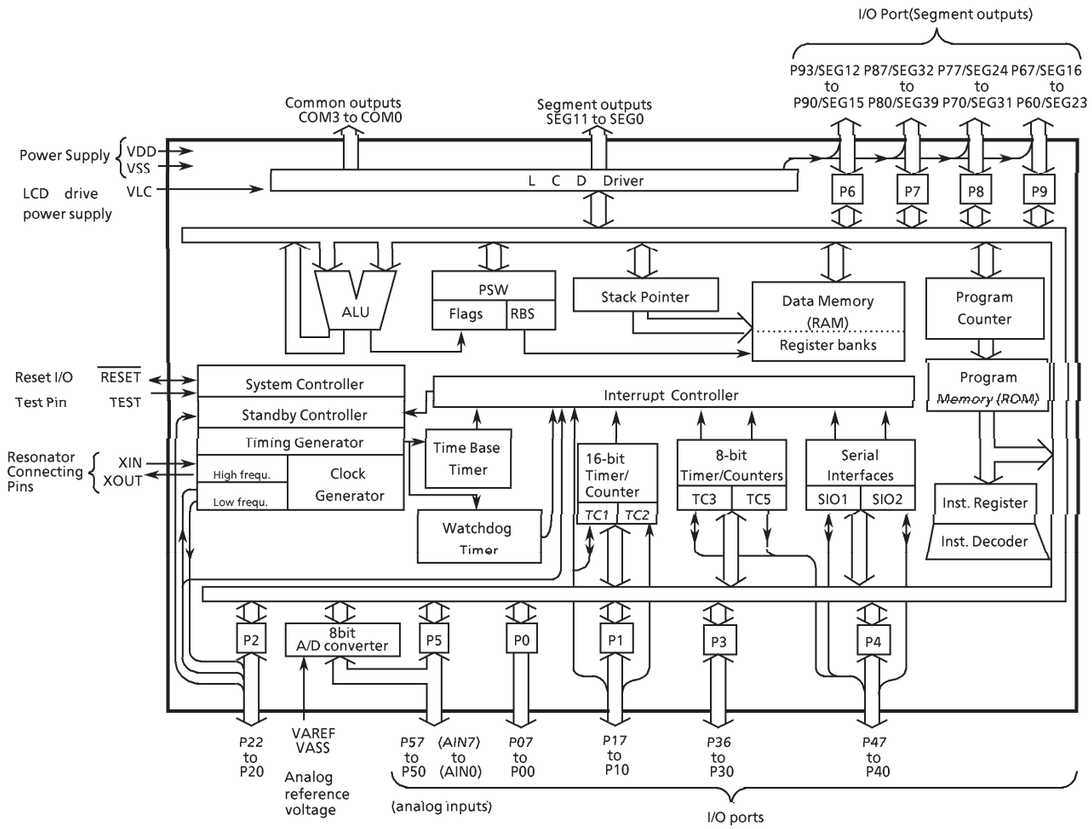
SERVO PROCESSOR SAA7325H

SYMBOL	PIN	DESCRIPTION
RAB	41	microcontroller interface R/W and load control line input (4-wire bus mode)
SILD	42	microcontroller interface R/W and load control line input (4-wire bus mode)
STATUS	43	servo interrupt request line/decoder status register output (open-drain)
TEST3	44	test control input 3; this pin should be tied LOW
RCK	45	subcode clock input
SUB	46	P-to-W subcode bits output (3-state)
SFSY	47	subcode frame sync output (3-state)
SBSY	48	subcode block sync output (3-state)
CL11/4	49	11.2896 MHz or 4.2336 MHz (for microcontroller) clock output
V_{SSD2}	50(1)	digital ground 3
DOBM	51	bi-phase mark output (externally buffered; 3-state)
$V_{DDD1(P)}$	52(1)	digital supply voltage 2 for periphery
CFLG	53	correction flag output (open-drain)
RA	54	radial actuator output
FO	55	focus actuator output
SL	56	sledge control output
$V_{DDD2(C)}$	57(1)	digital supply voltage 3 for core
V_{SSD3}	58(1)	digital ground 4
MOTO1	59	motor output 1; versatile (3-state)
MOTO2	60	motor output 2; versatile (3-state)
V4	61	versatile output pin 4
V5	62	versatile output pin 5
V1	63	versatile intput pin 1
LDON	64	laser drive on output (open-drain)

Note : All supply pins must be connected to the same external power supply voltage.

BLOCK DIAGRAM OF INTEGRATED CIRCUIT

IC 7400 TMP87CM23F



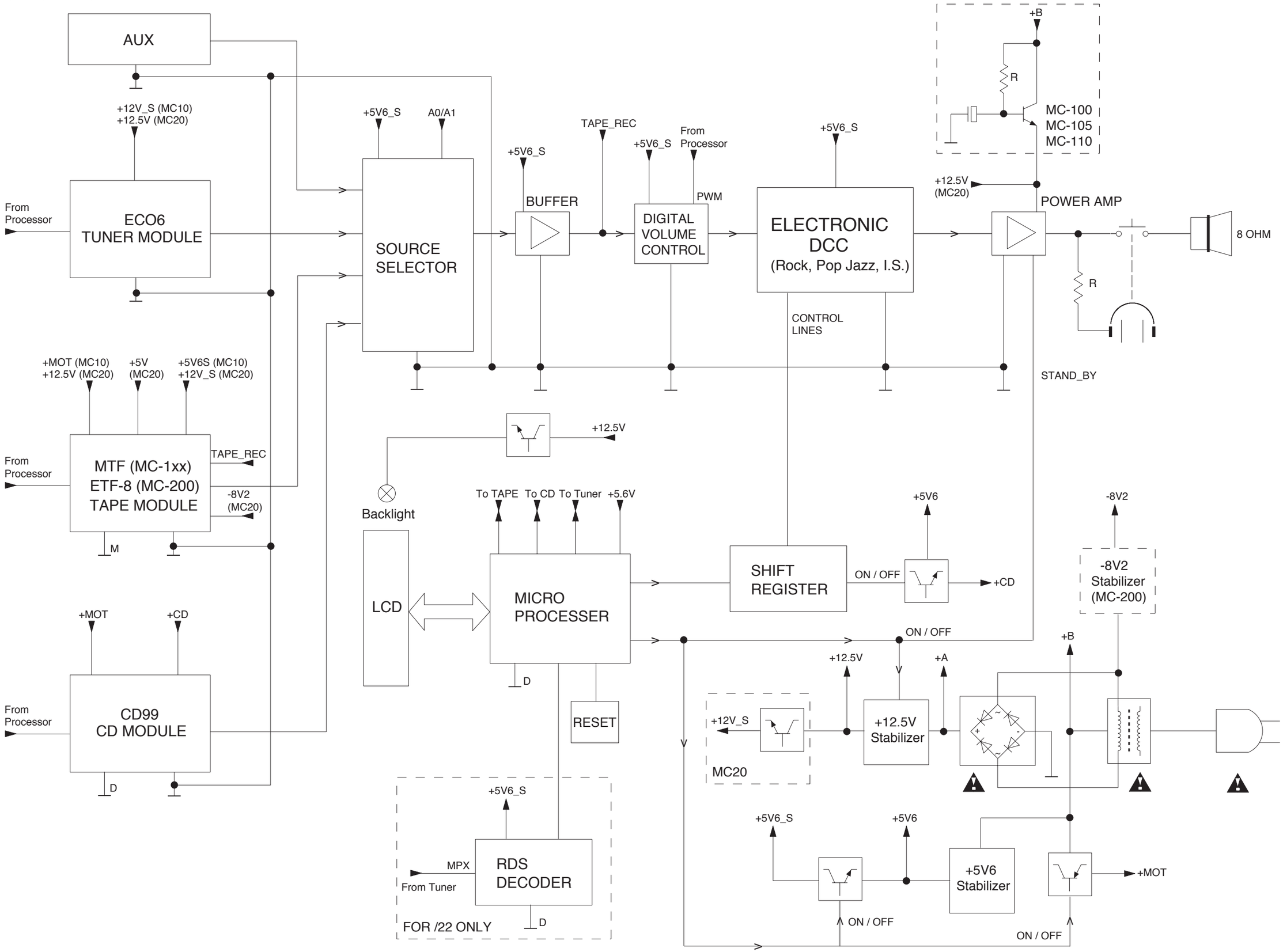
PINS DESCRIPTION OF IC 7400 TMP87CM23F

PIN FUNCTION

PIN NAME	Input / Output	FUNCTION	
P07 to P00	I/O	8-bit programmable input/output ports (tri-state).	
P17, P16			
P15 (TC2)	I/O (Input)	Each bit of these ports can be individually configured as an input or an output under software control. When used as timer/counter in or external interrupt input, the latch must be set to "0". When used as PPG output or divider output, the latch must be set to "1".	Timer/Counter 2 input
P14 ($\overline{PPG}$)	I/O (Output)		Programmable pulse generator output
P13 ($\overline{DVO}$)			Divider output
P12 (INT2 / TC1)	I/O (Input)		External interrupt input 2 or Timer/Counter 1 input
P11 (INT1)			External interrupt input 1
P10 ($\overline{INT0}$)			External interrupt input 0
P22 (XTOUT)	I/O (Output)	3-bit input/output port with latch. When used as an input port, the latch must be set to "1".	Resonator connecting pins (32.768kHz). For inputting external clock, XTIN is used and XTOUT is opened.
P21 (XTIN)	I/O (Input)		
P20 ($\overline{INT5}$/STOP)			External interrupt input 5 or STOP mode release signal input
P36 to P30	I/O	7-bit input/output port with latch. When used as input port, the latch must be set to "1".	
P47 (SO2)	I/O (Output)	8-bit input/output port with latch. When used as input port or a SIO input/output port, the latch must be set to "1".	SIO2 serial data output
P46 (SI2)	I/O (Input)		SIO2 serial data input
P45 ($\overline{SCK2}$)	I/O (I/O)		SIO2 serial clock input/output
P44 (SO1)	I/O (Output)		SIO1 serial data output
P43 (SI1)	I/O (Input)		SIO1 serial data input
P42 ($\overline{SCK1}$)	I/O (I/O)		SIO1 serial clock input/output
P41 ($\overline{PWM}$/PDO)	I/O (Output)		8-bit PWM output, 8-bit programmable divider output
P40 (INT3/TC3)	I/O (Input)		External interrupt input 3, Timer/Counter 3 input
P57 (AIN07) to P50 (AIN00)	I/O (Input)	8-bit programmable input/output port (tri-state). Each bit of the port can be individually configured as an input or an output under software control. When used as analog input, the latch must be set to "0".	A/D converter analog inputs
SEG39 (P80) to SEG32 (P87)	Output (I/O)	8-bit input/output port with latch. When used as an input port, the latch must be set to "1".	LCD segment outputs. When used as segment output, the control register of P6, P7, P8 and P9 must be set to "1".
SEG31 (P70) to SEG24 (P77)	Output (I/O)		
SEG23 (P60) to SEG16 (P67)	Output (I/O)		
SEG15 (P90) to SEG12 (P93)	Output (I/O)	4-bit input/output port with latch. When used as an input port, the latch must be set to "1".	
SEG11 to SEG0	Output	LCD segment outputs	
COM3 to COM0	Output	LCD common outputs	
XIN, XOUT	Input, Output	Resonator connecting pins for high-frequency clock. For inputting external clock, XIN is used and XOUT is opened.	
$\overline{RESET}$	I/O	Reset signal input or watchdog timer output/address-trap-reset output	
TEST	Input	Test pin for out-going test. Be fixed to low.	
VDD, VSS	Power Supply	+ 5 V, 0 V (GND)	
VAREF, VASS		Analog reference voltage inputs (High, Low)	
VLC	LCD drive power supply.		

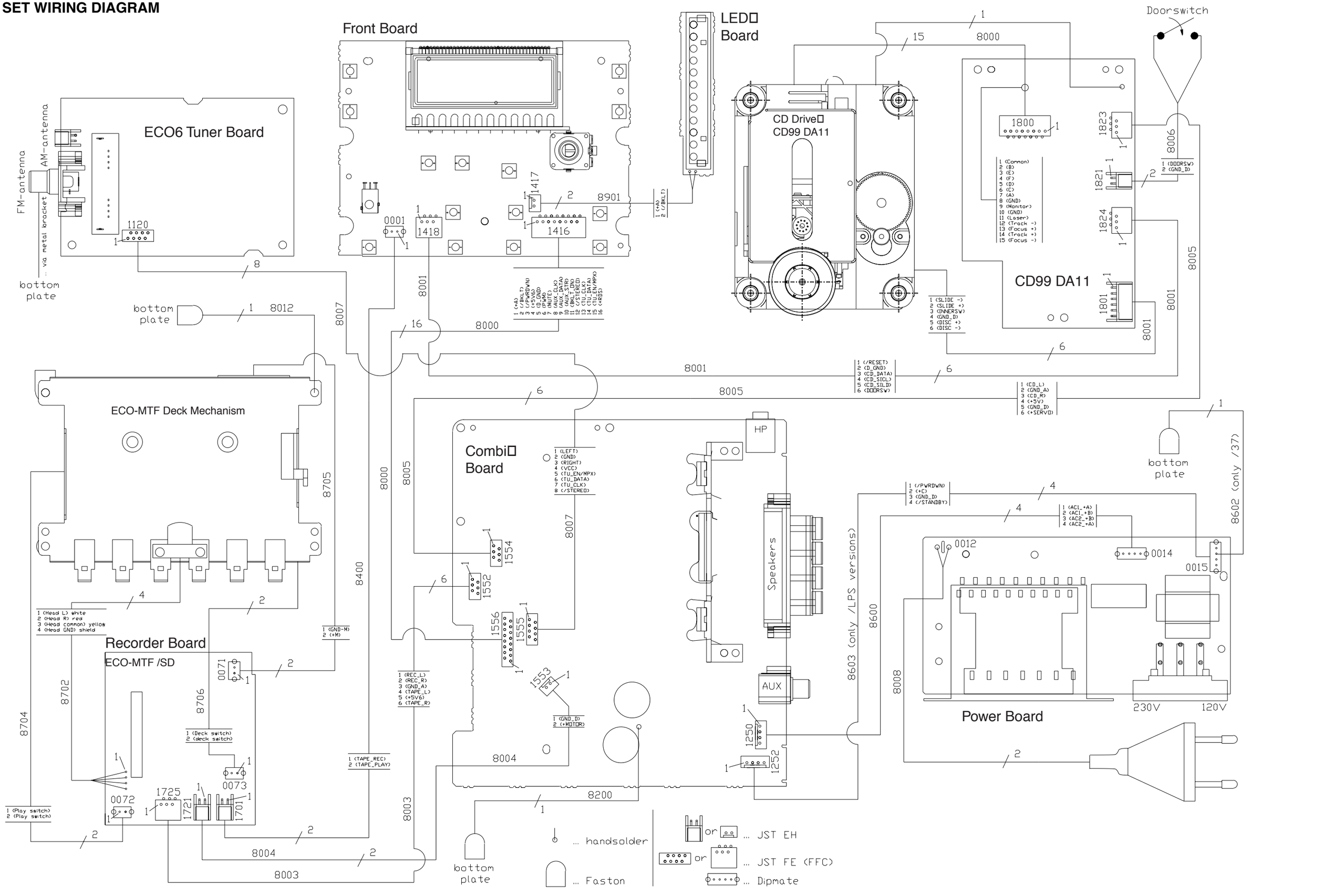
5 - 1

SET BLOCK DIAGRAM



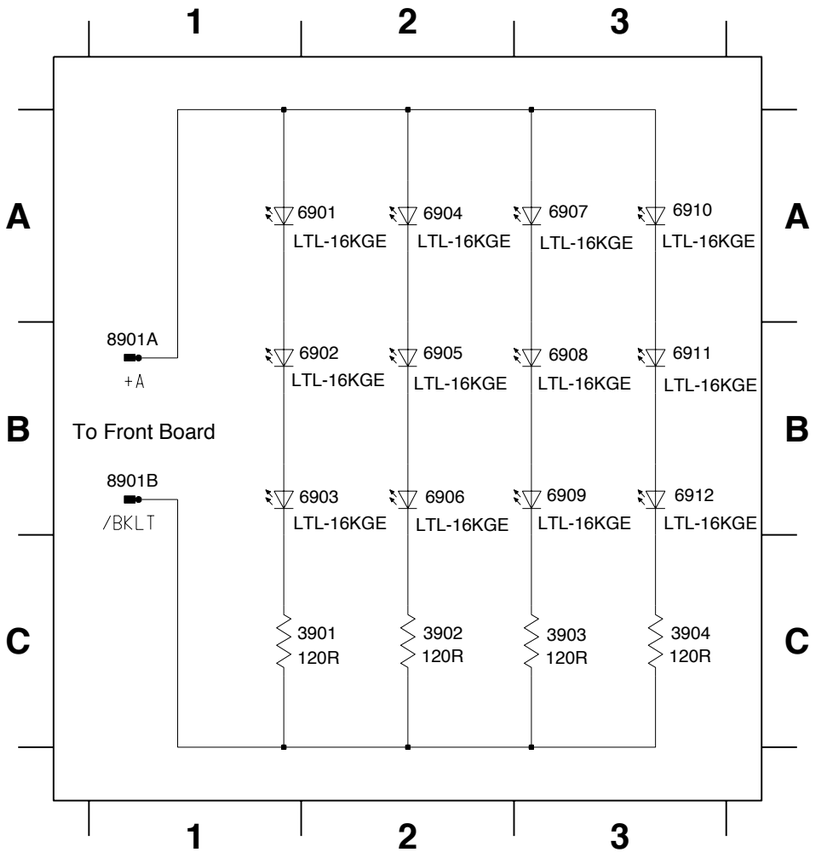
5 - 2

SET WIRING DIAGRAM

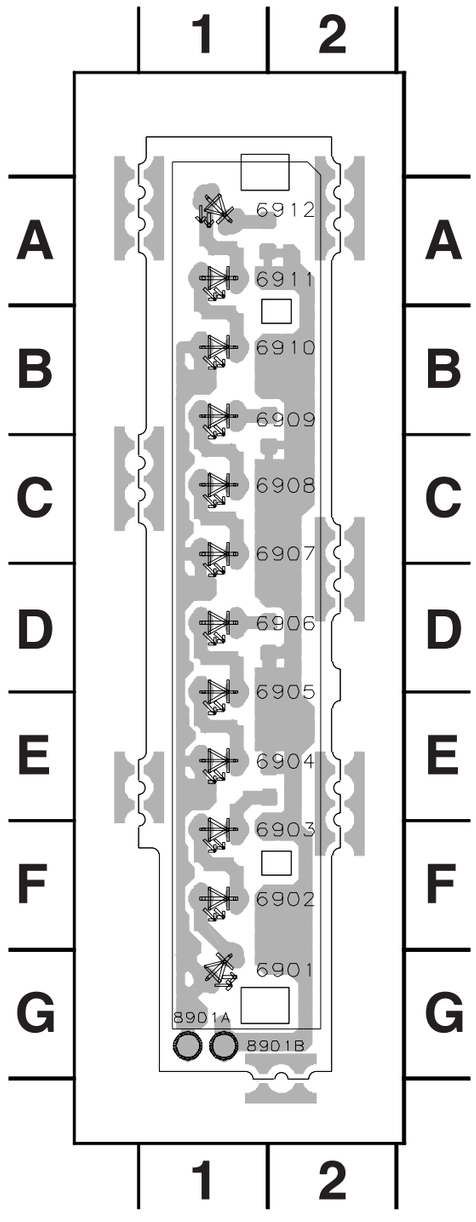


CIRCUIT DIAGRAM - LED BOARD

3901 C1	6903 B1	6909 B2
3902 C2	6904 A2	6910 A3
3903 C3	6905 B2	6911 B3
3904 C3	6906 B2	6912 B3
6901 A1	6907 A2	8901A B1
6902 B1	6908 B2	8901B B1



LAYOUT DIAGRAM - LED BOARD



6901	G2
6902	F2
6903	F2
6904	E2
6905	D2
6906	D2
6907	C2
6908	C2
6909	B2
6910	B2
6911	A2
6912	A2
8901A	G1
8901B	G2

7 - 1

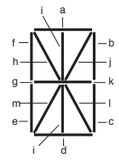
CIRCUIT DIAGRAM - FRONT BOARD

0001 F15 1400 I11 1401 I10 1402 I10 1403 I9 1404 I9 1405 I8
1406 I8 1407 I8 1408 I7 1409 I6 1410 I6 1411 I6 1412 I5
1413 I5 1414 I4 1415 I12 1416 B15 1417 D15 1418 E15 1420 G15
1425 A5 2400 B11 2401 B11 2402 B9 2403 B10 2404 C11 2405 C11
2406 E5 2407 F5 2408 F4 2409 F4 2410 F5 2411 F5 2412 F6
2413 F6 2414 G6 2415 F6 2416 F6 2417 H4 2418 H5 2419 H9
2420 I11 2421 I7 2422 I12 2423 I12 2424 F1 2425 G1 2426 G1
2427 I2 2428 I3 2429 I3 2430 A14 2431 B12 2432 B13 2433 B13
2434 B13 2435 D12 2436 D12 2437 D13 2438 D13 2439 D13 2440 D13
2441 D13 2442 F12 2443 F13 2444 F13 2445 F13 2446 F13 2447 G12
2448 G13 2449 H13 2450 H13 2451 H13 3400 A11 3401 A10 3402 C11
3403 E5 3404 E5 3405 F4 3406 F4 3407 F5 3408 G6 3409 F7
3410 H4 3411 H5 3412 H5 3413 F7 3414 F9 3415 H8 3416 H9
3417 H10 3418 D11 3419 D11 3420 I11 3421 I11 3422 I11 3423 I10
3424 I10 3425 I9 3426 I9 3427 I8 3428 I8 3429 I7 3430 I7
3431 I7 3432 I6 3433 I6 3434 I5 3435 I5 3436 I5 3437 I12
3438 I12 3439 F9 3440 F7 3441 F7 3442 E3 3443 F3 3444 F1
3445 G1 3446 G1 3447 A14 3448 A14 3449 A14 3450 F8 3451 A13
3452 A13 3453 E11 3454 A14 3455 F8 3456 B13 3457 A13 3458 F8
3459 C13 3460 F8 3461 C14 3462 F9 3463 C13 3464 F9 3465 C14
3466 F9 3467 C13 3468 F9 3469 C14 3470 F7 3471 D14 3472 D13
3473 F9 3474 E14 3475 D11 3476 E14 3477 E11 3478 E14 3479 E11
3480 F14 3481 E11 3482 F14 3483 E13 3484 E11 3485 F14 3486 D11
3487 G14 3488 D11 3489 G14 3490 C11 3491 G13 3492 D11 3493 G14
3494 D11 3495 G13 3496 G13 3497 F8 3498 G8 3499 G3 4400 H9
4401 I9 5400 A10 5401 C11 5402 F5 5403 F6 5404 G1 6400 A11
6401 B14 7400 D8 7402 F5 7403 G6 7404 H5 7405 H9 7406 F2
9400 F1 9401 A11 T401 B14 T402 B14 T403 B14 T404 B14 T405 B14
T406 C14 T407 C14 T408 C14 T409 C14 T410 C14 T411 C14 T412 D14
T413 D14 T414 D14 T421 E14 T422 E14 T423 E14 T424 F14 T425 F14
T426 F14 T431 G14 T432 G14 T433 G14 T434 G14 T435 G14 T436 H14
T441 A11 T442 B11 T443 F6 T444 F6 T445 G4 T446 G4 T447 G4
T448 H5 T449 H10 T451 A10 T452 A10 T453 H4

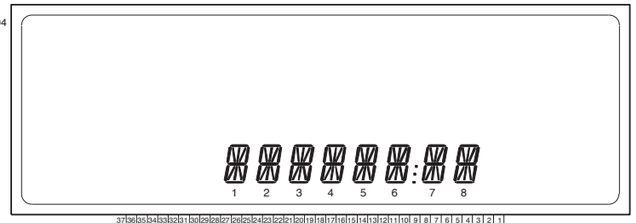
FRONT BOARD

DISPLAY CONNECTION TABLE

Pin	COM0	COM1	COM2	COM3
1	1e	1g	1f	ROCK
2	1m	1i	1h	POP
3	1d	1l	1j	1a
4	1c	1k	1b	JAZZ
5	2e	2g	2f	I.S.
6	2m	2i	2h	DBB
7	2d	2l	2j	2a
8	2c	2k	2b	NEWS
9	3e	3g	3f	EON
10	3m	3i	3h	RDS
11	3d	3l	3j	3a
12	3c	3k	3b	SIDE B
13	4e	4g	4f	SIDE A
14	4m	4i	4h	Y3
15	4d	4l	4j	4a
16	4c	4k	4b	Y1
17	5e	5g	5f	Y2
18	5m	5i	5h	RECORD
19	5d	5l	5j	5a
20	5c	5k	5b	PROGRAM
21	6e	6g	6f	CD
22	6m	6i	6h	REPEAT
23	6d	6l	6j	6a
24	6c	6k	6b	SHUFFLE
25	7e	7g	7f	TIMER
26	7m	7i	7h	ALL
27	7d	7l	7j	7a
28	7c	7k	7b	DOT
29	8e	8g	8f	COLON
30	8m	8i	8h	FM
31	8d	8l	8j	8a
32	8c	8k	8b	MW
33	AM	LW	STEREO	TUNER
34	--	--	--	COM3
35	--	--	COM2	--
36	--	COM1	--	--
37	COM0	--	--	--



1425
LP-6404



To uP pin no.95

To uP pin no.55

LCD(1:50)

PIN 55 to 63 2.8V
PIN 68 to 95 2.8V

7400
TMP87CM23F

RDS DECODER

RESET

OSC

IR RECEIVER

KEY GROUP1

KEY GROUP2

EEPROM

ROTARY ENCODER

7406
SAA6579T

7404
TSOP2836

7405
ST24C01B6

QUALITY BIT GENERATOR
DIFFERENTIAL DECODER
OSCILLATOR AND DIVIDER
BIPHASE SYMBOL DECODER
TEST LOGIC AND OUTPUT SELECTOR SWITCH
RECONSTRUCTION FILTER
57 Khz BANDPASS (6th ORDER)
COSTAS LOOP VARIABLE AND FIXED DIVIDER
CLOCK REGENERATION AND SYNC
ANTI-ALIASING FILTER
CLOCKED COMPARATOR
REFERENCE VOLTAGE

SHUFFLE | FAST FORWARD | RECORD | FAST BACKWARD REV. MODE | BAND / MODE | SOURCE | STANDBY

PROGRAM | TIMER | RDS | STOP | PLAY | I.S. | DSC | DBB

To / From COMBI BOARD

To Backlight-Board

To CD99

To MTF

To TAPE

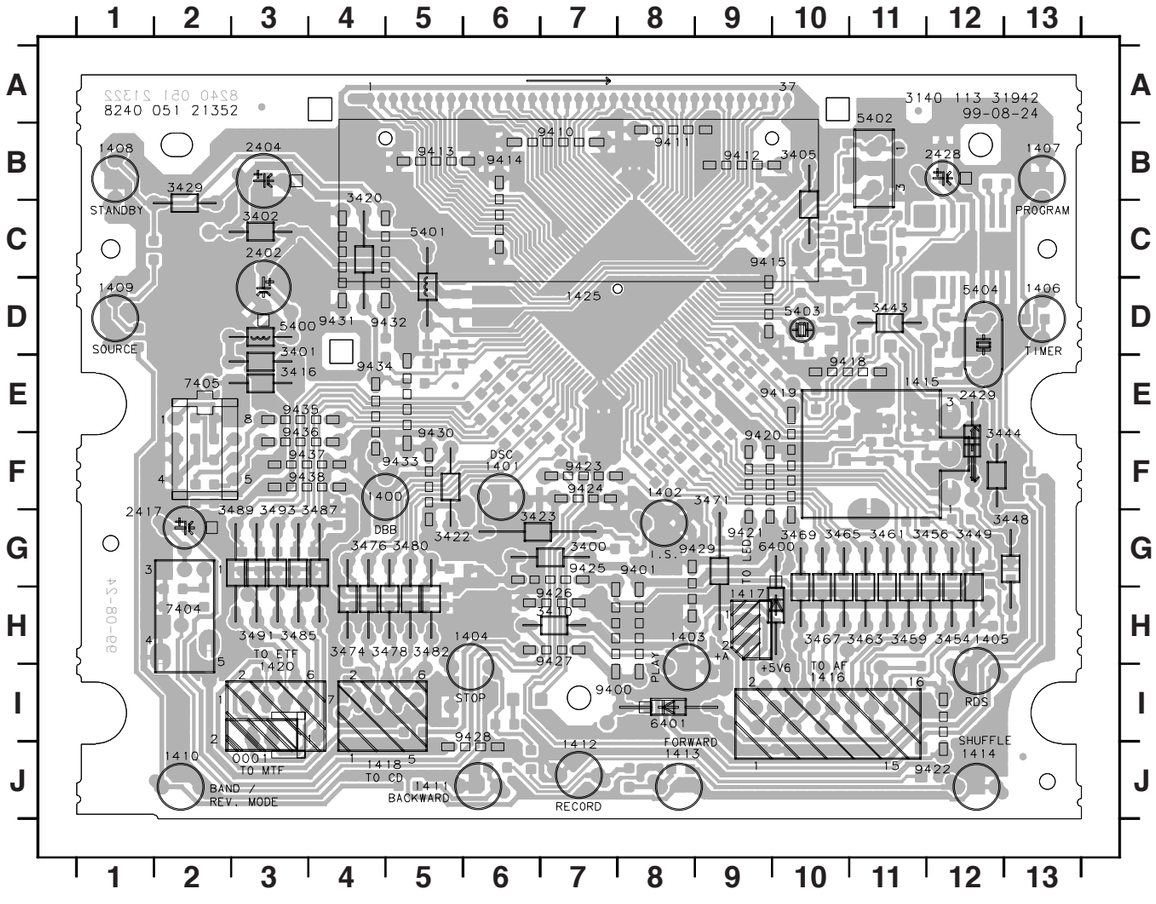
DC VOLTAGES MEASURED IN TUNER MODE
UNLESS OTHERWISE STATED
(230V MAINS SUPPLY)

*

ITEM / MODEL	1412	2447	2448	3485	3487	3495	3496
MC-1xx	X	X	X	2K2	2K2	56K	56K
MC-200	/	470p	470p	3K9	3K9	X	150K

LAYOUT DIAGRAM - FRONT BOARD

0001 J3
1400 F4
1401 F6
1402 F8
1403 H8
1404 H6
1405 H12
1406 D13
1407 B13
1408 B1
1409 D1
1410 J2
1411 J5
1412 J7
1413 J8
1414 J12
1415 E11
1416 I10
1417 H9
1418 J4
1420 I3
1425 D7
2402 C3
2404 B3
2417 G1
2428 B12
2429 E12
3400 G7
3401 D3
3402 C3
3405 B10
3410 H7
3416 E3
3420 B4
3422 G5
3423 G6
3429 B2
3443 D11
3444 F12
3448 G13
3449 G12
3454 H12
3456 G12
3459 H11
3461 G11
3463 H11
3465 G10
3467 H10
3469 G10
3471 F9
3474 H4
3476 G4
3478 H5
3480 G5
3482 H5
3485 H3
3487 G4
3489 H3
3491 G3
3493 G3
5400 D3
5401 C5
5402 A11
5403 D10
5404 D12
6400 G10
6401 I8
7404 H2
7405 E2
9400 I7
9401 B7
9410 B8
9411 B9
9412 B5
9413 B5
9414 B6
9415 C9
9418 E10
9419 E10
9420 F9
9421 G9
9422 J12
9423 F7
9424 F7
9425 G7
9426 H7
9427 H7
9428 I6
9429 G9
9430 F5
9431 D4
9432 F5
9433 F5
9434 E4
9435 E3
9436 E3
9437 E3
9438 F3



2400 H4
2401 H9
2403 D9
2405 D9
2406 C5
2407 C5
2408 C4
2409 D4
2410 D4
2411 B4
2412 B4
2413 C4
2414 C3
2415 D4
2416 D4
2418 H12
2419 F12
2420 D8
2421 D9
2422 F3
2423 F2
2424 B2
2425 E2
2426 D2
2427 B2
2430 H2
2431 G2
2432 H2
2433 G2
2434 G2
2435 G3
2436 G3
2437 G3
2438 G4
2439 G4
2440 G4
2441 G5
2442 H10
2443 H10
2444 H9
2445 H9
2446 H9
2447 G11
2448 G10
2449 G11
2450 G11
2451 G11
3403 C5
3404 B5
3406 D4
3407 D4
3408 C3
3409 E5
3411 H12
3412 H12
3413 E5
3414 F6
3415 F12
3417 F12
3418 E8
3419 E8
3421 E9
3424 G6
3425 I8
3426 J8
3427 F1
3428 D1
3430 D9
3431 C12
3432 D13
3433 J9
3434 J8
3435 J6
3436 J6
3437 F3
3438 F3
3439 F6
3440 D5
3441 E5
3442 C3
3445 E2
3446 D2
3447 G1
3450 E5
3451 I3
3452 G2
3453 F7
3455 E6
3457 G3
3458 F5
3460 E6
3462 F5
3464 F6
3466 F6
3468 F6
3470 E5
3472 G5
3473 F6
3475 F8
3477 E7
3479 F8
3481 E7
3483 G9
3484 F7
3486 E8
3488 E8
3490 E8
3492 E8
3494 E8
3495 G11
3496 G10
3497 E5
3498 E5
3499 E4
4400 E12
4401 F12
4410 I8
4411 E3
4412 F4
4413 I4
4414 J3
4415 H6
4416 I6
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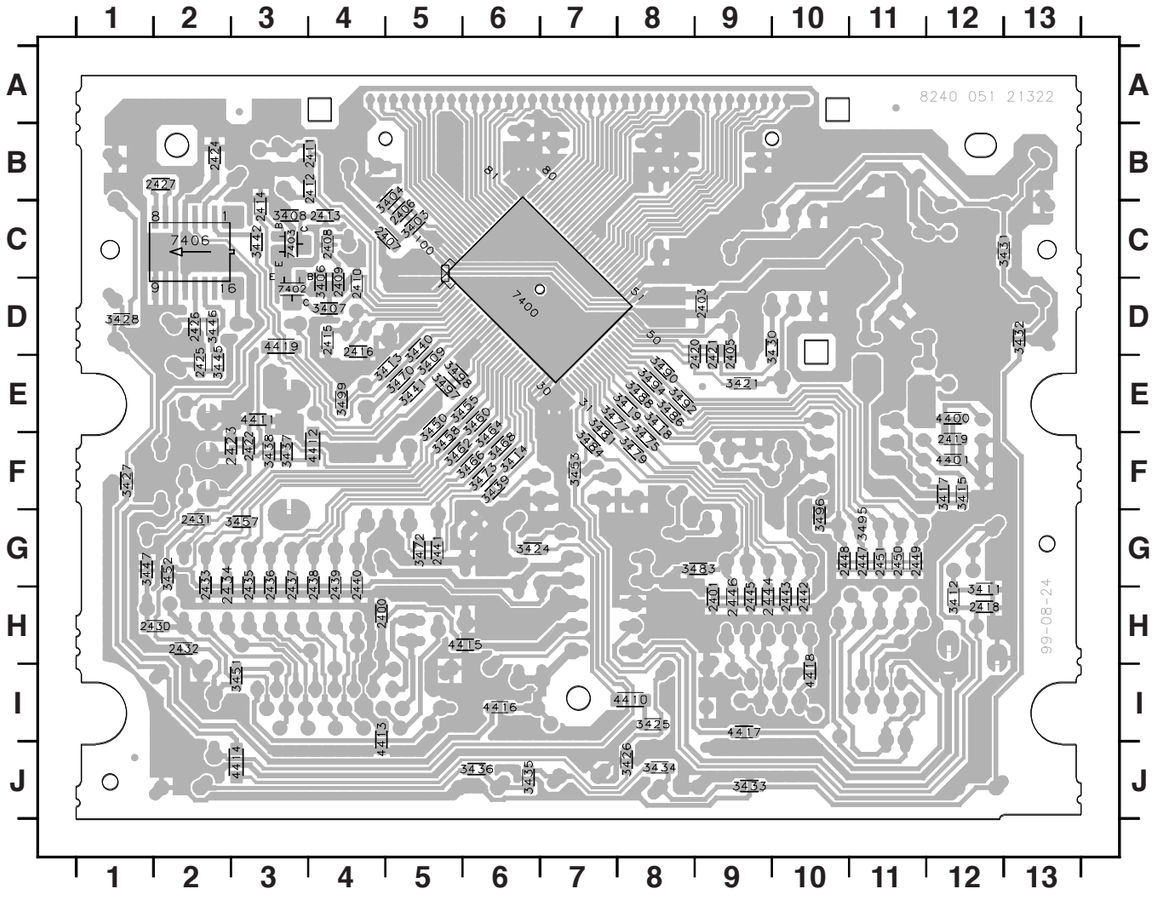
4418 I10
4419 D3
7400 D6
7402 D3
7403 C3
7406 C2



8 - 1

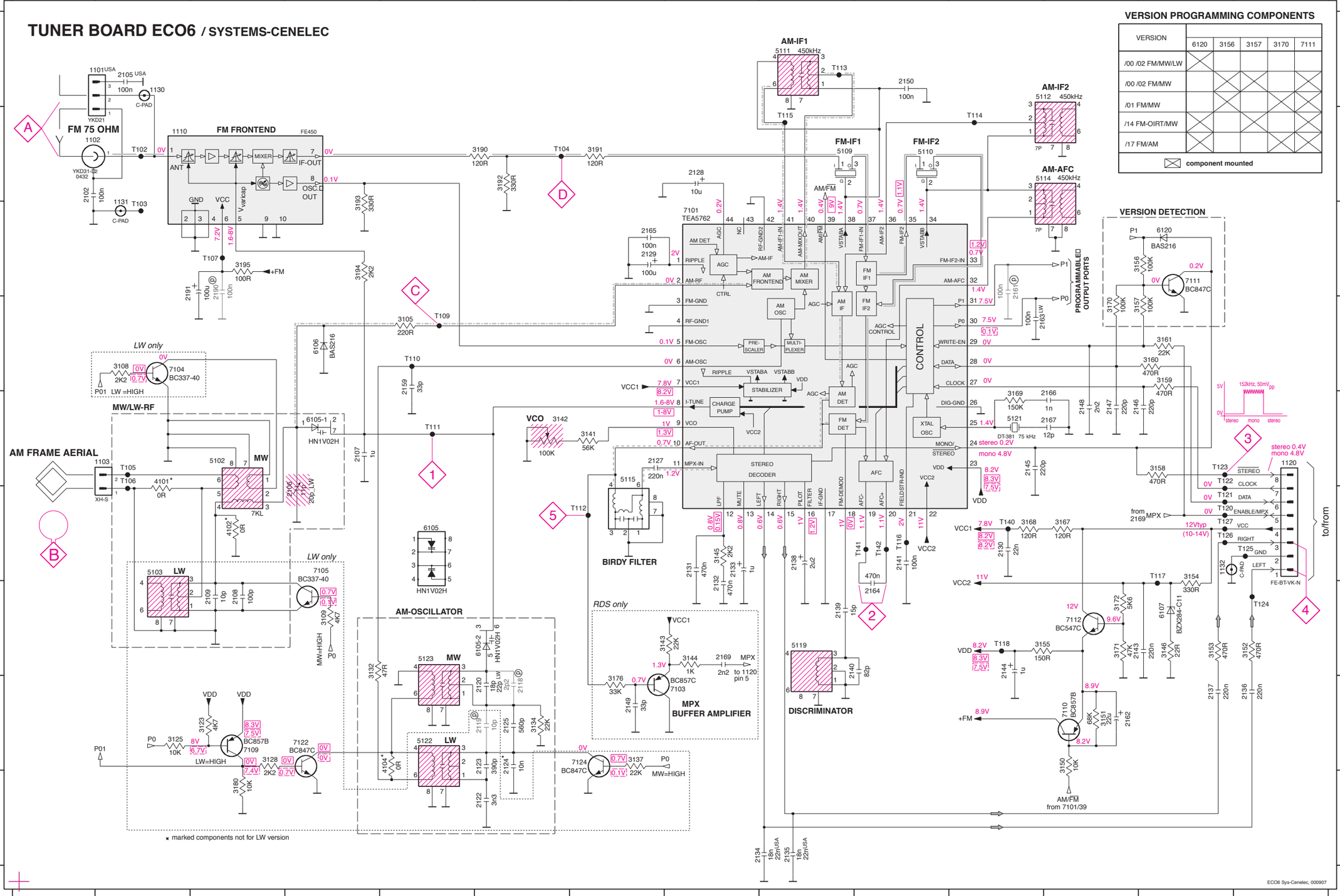
CIRCUIT DIAGRAM - ECO6 SYSTEM CENELEC BOARD

TUNER BOARD ECO6 / SYSTEMS-CENELEC

VERSION PROGRAMMING COMPONENTS

VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW	☒				
/00 /02 FM/MW		☒			☒
/01 FM/MW			☒		☒
/14 FM-OIRT/MW	☒			☒	
/17 FM/AM		☒	☒	☒	

☒ component mounted



* marked components not for LW version

LEGEND

* ... only assembled in FM/AM-version
(p)..for provision only
USA ... for USA version only
LW ... for LW version only

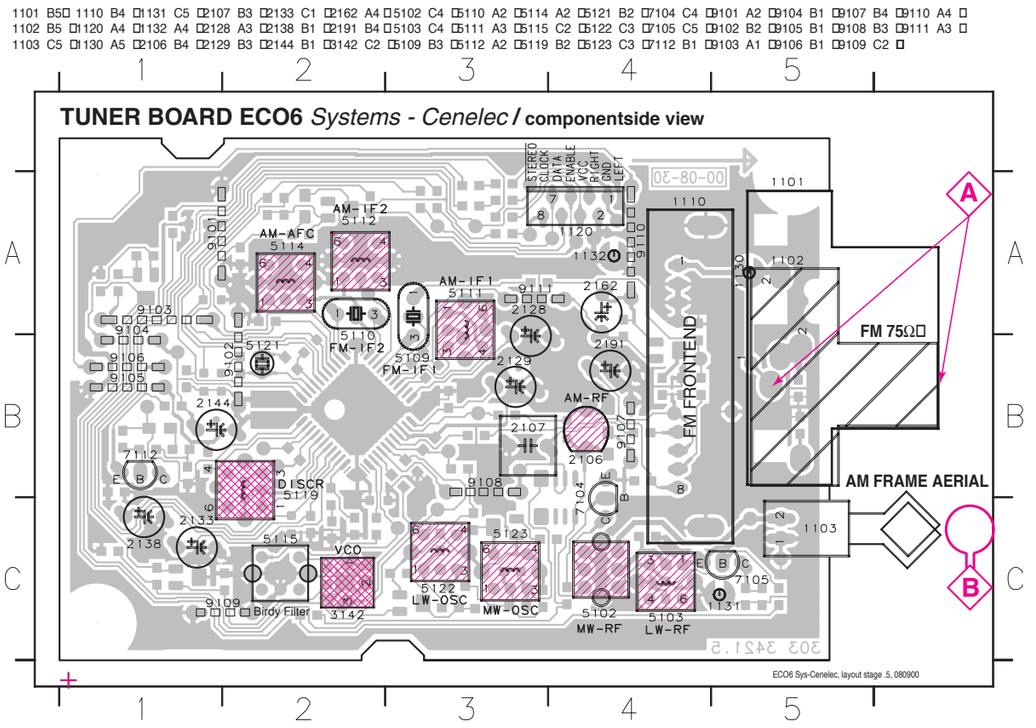
SMD jumper
41xx
0R

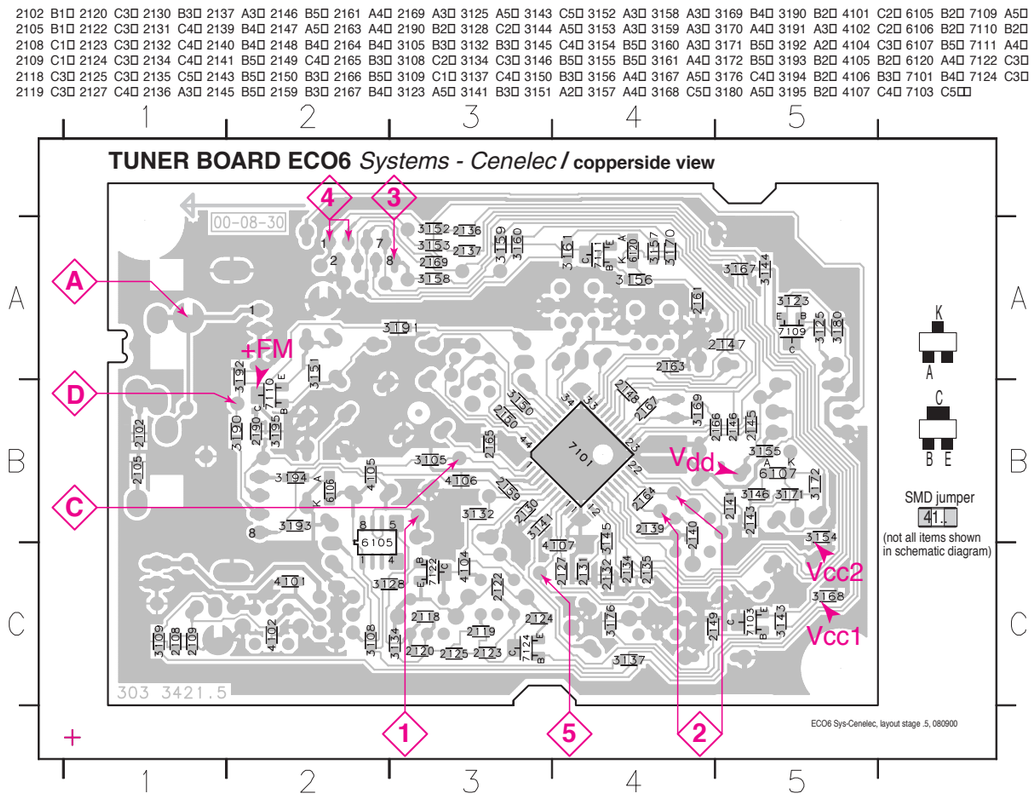
V EVM

...V FM mode stereo
...V MW mode
...V LW mode
voltages measured while set is tuned to a strong transmitter

Signal path
FM
AM
MPX (Audio Frequency)
AF - left/right

LAYOUT DIAGRAM - ECO6 SYSTEM CENELEC BOARD





These assembly drawings show a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

TUNER ADJUSTMENT TABLE (**ECO6 Cenelec** FM/MW - and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (50kHz grid)			108MHz	check	◇1	8V ±1.2V
			87.5MHz	check		1.6V ±0.5V
MW 531 - 1602kHz (9kHz grid)			1602kHz	5123		8V ±0.2V 3-band 6.9V ±0.2V 2-band
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz (3kHz grid)			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
FM - IF						
FM	10.7MHz, 45mV continuous wave	◇D	IC 7101 pin 21 shortcircuit to block AFC 2141	5119	◇2	0mV ±3mV
FM - VCO						
FM	98MHz, 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz [1]
FM RF (channel separation)	Note: The FM-frontend unit has already been adjusted by the factory and needs therefore no further adjustments for service purposes.					
FM	98MHz, 1mV 90% Left + 9% pilot mod=1kHz	◇A	98MHz	IF coil inside FM frontend 1110	◇4	right channel min.
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	◇C Δf = ±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 pin 36 — 100nF — 220R	5111	◇5	max. / f_o / symmetric
			IC 7101 pin 40 — 100nF — 220R see remark [2]	5112		
AM AFC **MW**		◇C continuous wave V_{RF} = 2mV		5114	◇2	0mV ±2mV
AM RF [3]						
MW	1494kHz	◇B	1494kHz	2106	◇5	max. / f_o / symmetric
	558kHz		558kHz	5102		
LW	198kHz	Δf = ±30kHz V_{RF} as low as possible	198kHz	5103		

ECO6 Sys Cenelec, 190599

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

[1] If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

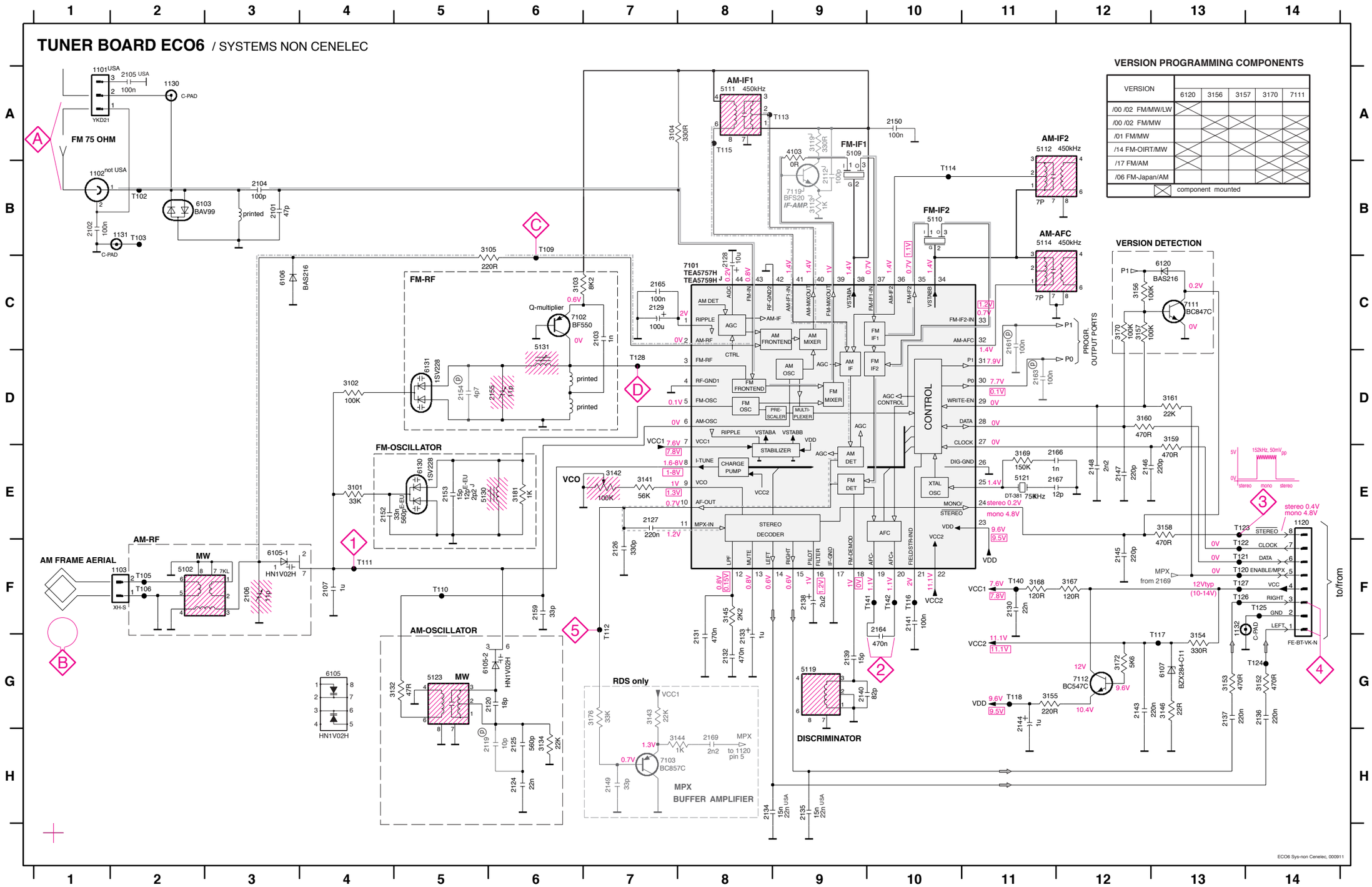
[2] RC network serves for damping the IF-filter while adjusting the other one.

[3] For AM RF adjustments the original frame antenna has to be used!
MW has to be aligned before LW.

↕ Repeat

8 - 3

CIRCUIT DIAGRAM - ECO6 SYSTEM NON-CENELEC BOARD



VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW	☒				
/00 /02 FM/MW		☒	☒		☒
/01 FM/MW		☒		☒	
/14 FM-OIRT/MW			☒		
/17 FM/AM	☒				☒
/06 FM-Japan/AM		☒	☒	☒	

LEGEND

Ⓟ...for provision only
USA ... for USA version only
E-EU ... for East European version only
J ... for Japanese version only

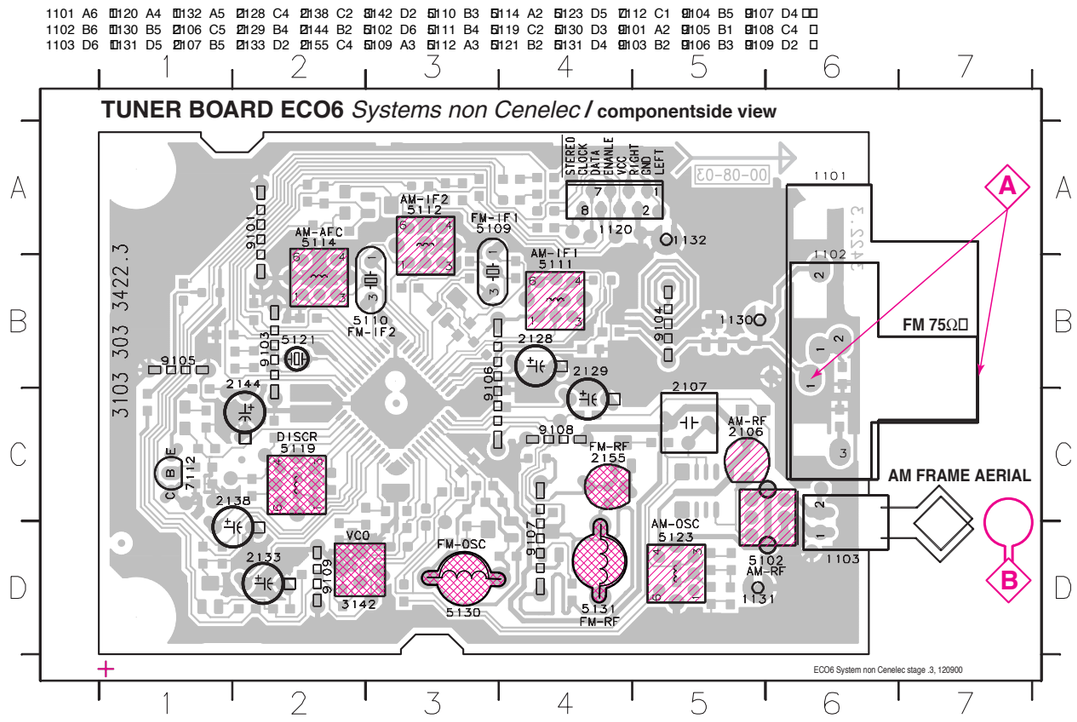
...V FM mode stereo
...V MW mode
...V LW mode
Ⓥ EVM
voltages measured while set is tuned to a strong transmitter

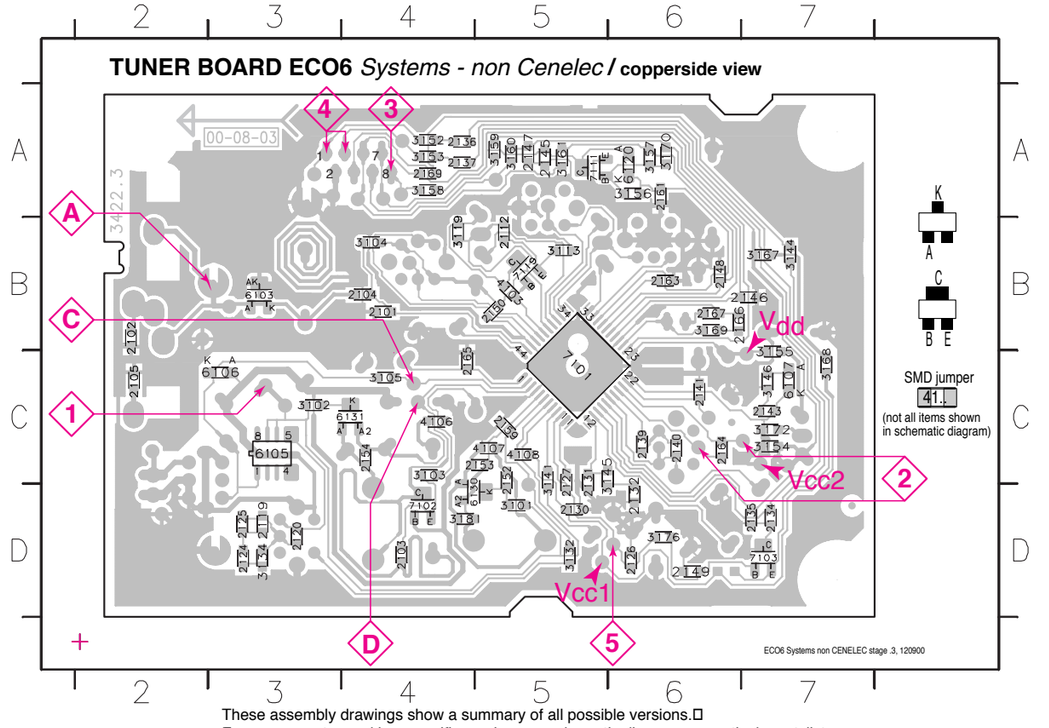
Signal path

FM
AM
MPX (Audio Frequency)
AF - left/right

1101 A1
1102 B1
1103 F2
1120 E14
1130 A2
1131 B2
1132 G13
2101 B3
2102 B1
2103 C7
2104 B3
2105 A2
2106 F3
2107 F4
2119 H6
2120 G6
2124 H6
2125 H6
2126 F7
2127 E7
2128 C8
2129 C7
2130 F11
2131 G8
2132 G8
2133 G8
2134 H8
2135 H9
2136 G14
2137 G13
2138 F9
2139 G9
2140 G9
2141 F10
2143 G12
2144 G11
2145 F12
2146 E12
2147 E12
2148 E12
2149 H7
2150 A10
2152 E4
2153 E5
2154 D5
2155 D5
2159 F6
2161 C11
2163 D11
2164 F10
2165 C7
2166 E11
2167 E11
2169 H8
3101 E4
3102 D4
3103 C6
3104 A7
3105 B6
3132 G5
3134 H6
3141 E7
3142 E7
3143 G7
3144 H7
3145 F8
3146 G13
3152 G14
3153 G13
3154 G13
3155 G11
3156 C12
3157 C12
3158 E13
3159 D13
3160 D12
3161 D13
3167 F12
3168 F11
3169 E11
3170 C12
3172 G12
3176 G7
3181 E6
5102 F2
5109 B9
5110 B10
5111 A8
5112 A11
5114 B11
5119 G9
5121 E11
5123 G5
5130 E5
5131 C6
6103 B2
6105-1 F3
6105-2 G5
6106 C3
6107 G13
6120 C13
6130 E5
6131 D5
7101 C8
7102 C6
7103 H7
7111 C13
7112 G12
T102 B2
T103 B2
T105 F2
T106 F2
T109 B6
T110 F5
T111 F4
T112 F7
T113 A8
T114 B10
T115 A8
T116 F10
T117 G13
T118 G11
T120 F13
T121 F13
T122 F13
T123 E13
T124 G14
T125 F14
T126 F13
T127 F13
T128 D7
T140 F11
T141 F10
T142 F10

LAYOUT DIAGRAM - ECO6 SYSTEM NON-CENELEC BOARD





These assembly drawings show a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

TUNER ADJUSTMENT TABLE (ECO6 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	1	8V ±0.2V
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V
			530kHz	check		1.1V ±0.4V
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 45mV continuous wave	D	IC 7101 21 shortcircuit to block AFC 2141	5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A	108MHz	2155	4	MAX
	87.5MHz (65.81MHz)	mod=1kHz Δf=±22.5kHz	87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz 1)
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C Δf=±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 36 100nF 220R	5111	5	max. f_o symmetric
			IC 7101 40 100nF 220R see remark 2)	5112		
AM AFC **MW**		C continuous wave V_{RF} = 2mV		5114	2	0 ± 2 mV DC
AM RF 3)						
MW 4) FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	B Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	5	max. f_o symmetric
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz		1500kHz	2106		
	560kHz		560kHz	5102		

ECO6, Sys + PA with frame aerial, 070799

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

2) RC network serves for damping the IF-filter while adjusting the other one.

3) For AM RF adjustments the original frame antenna has to be used !

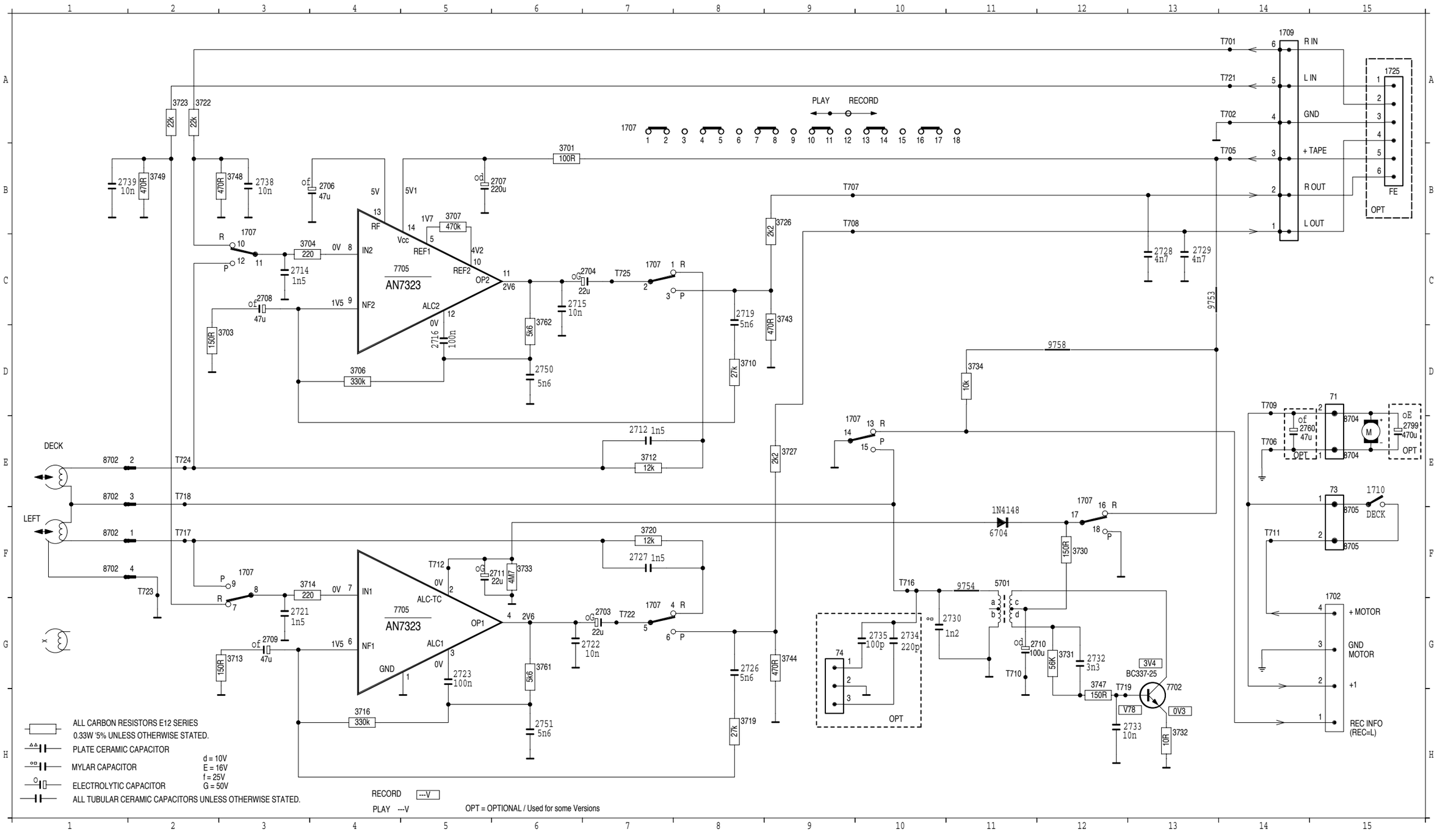
4) MW has to be aligned before LW.

↕ Repeat

9 -1

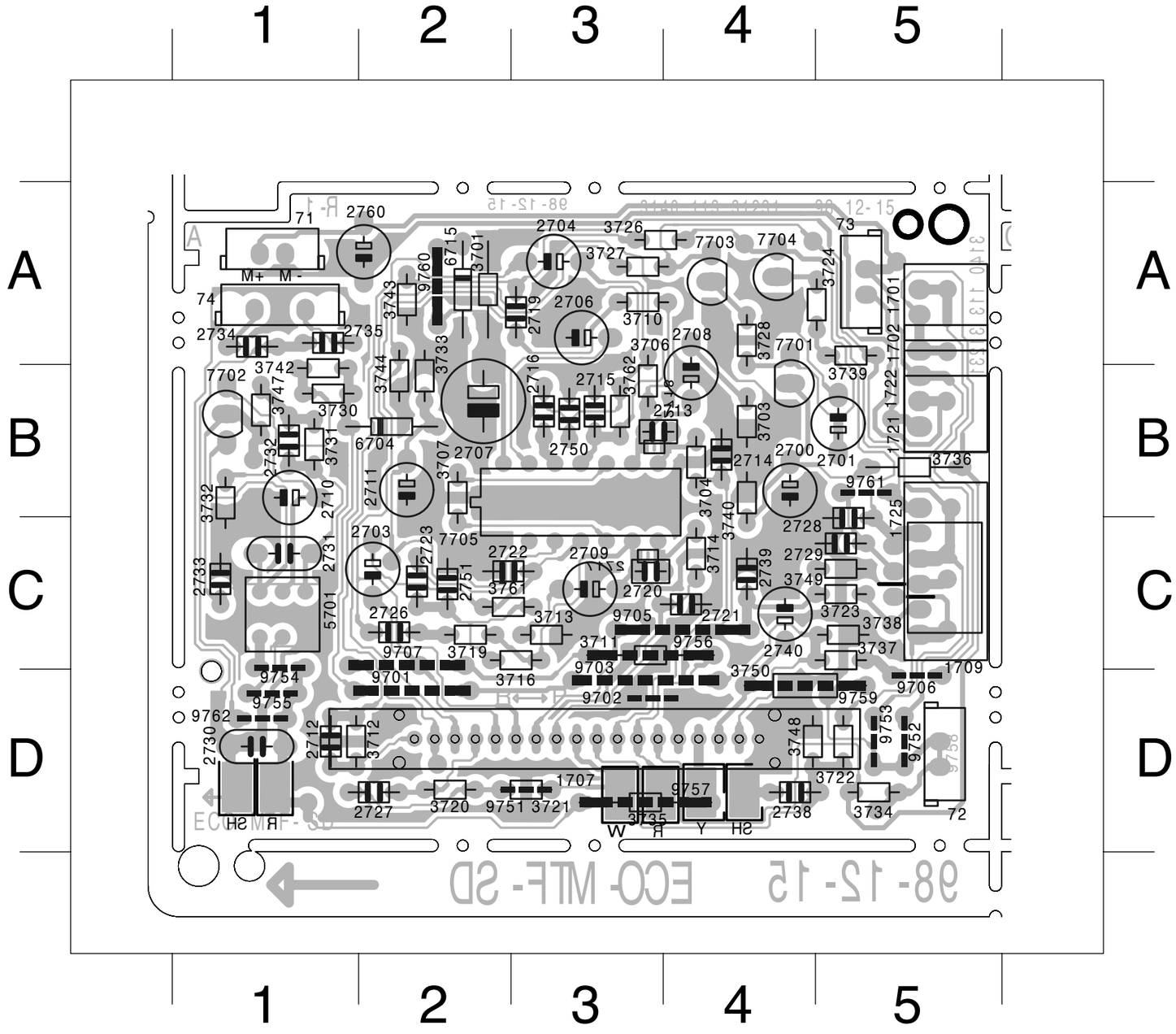
CIRCUIT DIAGRAM - MTF BOARD

71	D15	1707	C 3	1709	A14	2706	B 4	2711	F 6	2719	C 8	2727	F 7	2733	H13	2750	D 6	3703	D 3	3712	E 7	3720	F 7	3730	F12	3743	C 9	3761	G 6	7705	G 4	8702	E 1	9753	C13	T705	B14	T710	G11	T718	E 2	T724	E 2
73	E15	1707	G 7	1710	E15	2707	B 6	2712	E 7	2721	G 3	2728	C13	2734	G10	2751	H 6	3704	C 3	3713	G 3	3722	A 2	3731	G12	3744	G 9	3762	D 6	7705	C 4	8704	E15	9754	F11	T706	E14	T711	F14	T719	H13	T725	C 7
74	G 9	1707	C 7	1725	A15	2708	C 3	2714	C 3	2722	G 7	2729	C13	2735	G10	2760	E14	3706	D 4	3714	F 3	3723	A 2	3732	H13	3747	G12	5701	F11	8702	F 1	8704	E15	9758	D12	T707	B10	T712	F 5	T721	A14		
1702	G15	1707	E 9	2703	G 7	2709	G 3	2715	C 6	2723	G 5	2730	G11	2738	B 3	2799	E15	3707	B 5	3716	H 4	3726	B 9	3733	F 6	3748	B 3	6704	F11	8702	F 1	8705	F15	T701	A14	T708	B10	T716	F10	T722	G 7		
1707	F 3	1707	E12	2704	C 7	2710	G12	2716	D 5	2726	G 8	2732	G12	2739	B 1	3701	B 6	3710	D 8	3719	H 8	3727	E 9	3734	D11	3749	B 2	7702	H13	8702	E 1	8705	F15	T702	A14	T709	D14	T717	F 2	T723	F 2		



9 - 2

LAYOUT DIAGRAM - MTF BOARD



71	A 1	2729	C 5	3733	B 2	9756	C 3
72	D 5	2730	D 1	3734	D 5	9757	D 3
73	A 5	2731	C 1	3735	D 3	9759	D 4
74	A 1	2732	B 1	3736	B 5	9760	A 2
1701	A 5	2733	C 1	3737	C 5	9761	B 5
1702	B 5	2734	A 1	3738	C 5	9762	D 1
1707	D 3	2735	A 1	3739	A 5	T701	C 5
1709	C 5	2738	D 4	3740	B 4	T702	C 5
1721	B 5	2739	C 4	3742	B 1	T705	B 5
1722	B 5	2740	C 4	3743	A 2	T706	B 5
1725	C 5	2750	B 3	3744	B 2	T709	A 5
2700	B 4	2751	C 2	3747	B 1	T710	C 1
2701	B 5	2760	A 2	3748	D 4	T711	B 5
2703	C 2	3701	A 2	3749	C 5	T712	C 2
2704	A 3	3703	B 4	3750	D 4	T713	A 5
2706	A 3	3704	B 4	3761	C 2	T714	D 5
2707	B 2	3706	B 3	3762	B 3	T715	D 5
2708	B 4	3707	B 2	5701	C 1	T716	D 1
2709	C 3	3710	A 3	6704	B 2	T719	B 1
2710	B 1	3711	C 3	6715	A 2	T720	A 5
2711	B 2	3712	D 1	7701	B 4	T721	C 5
2712	D 1	3713	C 3	7702	B 1	T722	C 2
2713	B 3	3714	C 4	7703	A 4	T725	D 2
2714	B 4	3716	C 3	7704	A 4	T7707	A 4
2715	B 3	3719	C 2	7705	B 3	T7708	A 4
2716	B 3	3720	D 2	9701	D 2		
2717	C 3	3721	D 3	9702	D 3		
2718	B 3	3722	D 5	9703	D 3		
2719	A 3	3723	C 5	9705	C 4		
2720	C 3	3724	A 5	9706	D 5		
2721	C 4	3726	A 3	9707	C 2		
2722	C 2	3727	A 3	9751	D 3		
2723	C 2	3728	A 4	9752	D 5		
2726	C 2	3730	B 1	9753	D 5		
2727	D 2	3731	B 1	9754	C 1		
2728	C 5	3732	B 1	9755	D 1		

CASSETTE ADJUSTMENT

Adjustment	Cassette	SK	Deck 1	Measure on	Read on	Adjust with	Adjust to
Azimuth	10 kHz SBC420*	Tape	Play	H/P Jack	mV meter	Left hand Screw R/P head	max.
Motor Speed	3150 kHz SBC420*	Tape	Play	H/P Jack	Wow and flutter meter	Preset in motor	**a

* SBC420 : 4822 397 30071

**a The maximum permissible speed deviation is ± 3%.
Morever, the wow and flutter value can be read.

10 - 1

CIRCUIT DIAGRAM - COMBI BOARD (Part 1)

1550 A1 1551 B1 1552 B2 1553 C2 1554 D2 1555 E2 1556 G2 2500 A8
2501 B10 2502 B10 2503 F14 2505 B8 2506 D8 2507 B9 2508 D9 2509 C9
2510 E9 2511 D10 2512 F10 2513 C10 2514 G10 2515 D11 2516 F11 2517 D11
2518 E11 2519 E12 2520 E12 2521 C12 2522 G12 2523 C12 2524 G12 2525 C13
2526 F13 2527 B13 2528 H13 2529 C14 2530 G14 2531 C13 2532 G13 2533 C14
2534 G14 2535 B8 2550 A2 2551 A2 2552 B2 2553 B1 2554 G4 2555 H3
2557 G6 2558 I6 2559 I6 2560 I7 2561 F6 2563 B5 2564 C6 2565 B6
2566 D6 2567 B7 2568 D7 2569 B7 2570 D7 2571 G7 2573 A4 3500 A7
3501 B9 3502 B10 3503 B10 3505 C8 3506 E8 3507 C9 3508 E9 3509 C9
3510 E9 3511 C10 3512 G10 3513 D11 3514 F11 3515 D11 3516 E11 3517 D12
3518 E12 3519 E12 3520 E12 3521 E13 3522 E12 3523 D12 3524 F12 3525 B12
3526 H12 3527 B12 3528 H12 3529 C12 3530 G12 3531 C12 3532 G12 3533 C13
3534 G13 3535 C13 3536 G13 3537 A14 3538 I14 3539 B14 3540 H14 3541 A14
3542 I14 3543 B14 3544 H14 3545 C14 3546 G14 3547 B15 3548 H15 3551 A3
3552 A3 3553 B3 3554 B3 3555 C2 3556 B2 3557 D3 3558 D3 3559 E3
3560 E4 3561 E2 3562 F2 3563 G4 3565 I4 3566 I4 3568 H5 3572 G7
3573 H8 3574 F6 3575 C5 3576 C5 3577 B6 3578 D6 3579 B6 3580 D6
3581 B7 3582 D6 3583 B7 3584 D7 3585 C7 3586 E7 3587 B7 3588 D7
3589 G7 5550 E3 5551 F3 5552 C2 6500 B10 6550 I5 7500-A F10 7500-B F11
7500-C F13 7500-D D13 7500-E D11 7500-F D10 7501 C8 7502 E8 7503 C9
7504 E9 7505 D12 7506 F12 7507 B12 7508 H12 7509 C12 7510 G12 7511 B13
7512 H13 7513 B13 7514 H13 7550 H4 7551 B4 7552 G7 7553 F5 7555 B6
7556 D6 9551 C2 9552 C2 9553 D2 9554 E3 9555 F3 T500 A8 T501 B9
T503 C9 T504 E9 T505 C9 T506 E9 T507 B12 T508 H12 T509 G12 T510 G12
T511 B13 T512 H13 T513 B13 T514 H13 T515 B14 T516 H14 T517 B15 T518 H15
T550 D5 T551 A2 T552 A2 T553 B2 T554 C2 T555 C2 T556 B2 T557 C2
T558 C2 T559 D2 T560 D2 T561 D2 T562 D2 T563 E2 T564 E2 T565 E2
T566 F2 T567 E3 T568 F3 T569 F2 T570 F2 T571 F2 T572 F2 T573 G2
T574 G2 T575 H2 T576 H2 T577 H2 T578 H2 T579 H2 T580 H2 T581 I2
T582 I2 T583 I2 T584 I4 T585 I4 T586 I5 T587 I5 T588 I5 T589 I6
T590 I6 T591 I6 T592 I7 T593 I7 T594 I7 T595 I8 T596 I8

COMBI BOARD

Source Selection / Sound Control part

SOURCE SELECTOR

ELECTRONIC VOLUME CONTROL

DIGITAL SOUND CONTROL (DSC)

uP Port Extension

BACKLIGHT

Source Selection Logic Table		
Source	A1	A0
TAPE	0	0
AUX	1	0
TUNER	0	1
CD	1	1

LOGIC TABLE

Sound features		Control lines			
DSC	DBB	DBB	POP	BASS	JAZZ
off	off	0	0	1	0
(flat)	on	1	0	1	0
Rock	off	1	0	1	0
	on	1	0	0	0
Jazz	off	0	0	1	1
	on	1	0	1	1
Pop	off	1	1	1	1
	on	1	1	0	1

* Item / Model	3541 3542	3551 3552	3553 3554	3555 3556	3557 3558	3559 3560	3561 3562	5552	9551	9552	9553
MC-100/105/110	220K	39K	6K8	22K	33K	3K3	15K	2.2uH	X	✓	X
MC-200	150K	33K	8K2	6K8	18K	2K7	10K	X	✓	X	✓

(230V MAINS SUPPLY) DC VOLTAGES MEASURED IN :

- V — CD Mode 1KHz , 0dB track, DSC "OPTIMAL", DBB "OFF", INCR "OFF", VOLUME "20"
- V — Tuner Mode 1KHz , df "22.5kHz", DSC "OPTIMAL", DBB "OFF", INCR "OFF", VOLUME "20"
- [V] — Standby Mode
- [V] — DSC OFF/ON at CD Mode 1KHz , 0dB track, VOLUME"20"

10 - 2

CIRCUIT DIAGRAM - COMBI BOARD (Part 2)

1330 A13 2331 E4 2334 D5 2337 E9 2340 D9 2343 B11 2346 E12 2349 H10 2353 H7 3331 E5 3334 D5 3337 F9 3340 B10 3343 E9 3346 D9 3349 G7 3352 G11 3356 B5 3360 I5 3363 C7 4333 E5 5331 E9 5334 C9 6333 H5 7331 G8 7334 B4 T330 B6 T333 C7 T336 H6 T339 D13 T342 E13
1331 D13 2332 D4 2335 E5 2338 D9 2341 A11 2344 B11 2347 F11 2351 B6 2354 H8 3332 D5 3335 E9 3338 D9 3341 B11 3344 B11 3347 F9 3348 G7 3351 G11 3354 B4 3357 B5 3361 H6 3364 B8 3365 B9 4334 D5 5332 D9 5335 E9 6331 G11 6334 C8 7330 D6 7332 G7 7335 H8 T331 B12 T334 G10 T337 B12 T340 E13 T343 E4
2330 C7 2333 E5 2336 D5 2339 F9 2342 B11 2345 D12 2348 F10 2352 I5 2355 C8 3333 E5 3336 D9 3339 A10 3342 B11 3345 F9 3348 G7 3351 G11 3354 B4 3358 B5 3359 H5 3362 B8 3363 B9 4335 A5 5333 E9 6332 G10 7330 D6 7333 H7 9330 B8 T332 C7 T335 H8 T338 B12 T341 E13 T344 D4

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

A B C D E F G H I

COMBI BOARD

Power amplifier part

MUTE
4335
+5V6
(forseen only)
3356 22K
3354 10K
7334 BC847B
3358 4K7
T330
2351 4u7

(MC148) 9330
+AMP
9.8V 9.9V
BDW93CFP 7335
10.4V
11V 11V
11V
3362 1K8
11.1V 11.1V
11.1V
3364 390R
3365 270R
3363 10K
2355 100u
6334 BZX55-B11
2330 4u7
T333
(MC118)

T332
7330 AN7125
VCC
OUT1+
GND1
OUT1-
STB
MUTE
VREF
OUT2-
GND2
OUT2+
GND
MC148 5.8V
MC148 5.8V
MC148 5.8V
MC148 5.8V
0V 6 IN1
0V 8 IN2
3.1V 3.25V
0V 5 STB
0/2.2V 9 MUTE

HEADPHONE SOCKET
1330
3339 68R
2341 47u
3341 4K7
2343 1n
3340 68R
2342 47u
3342 4K7
2344 1n
T337
T338
16 - 150 ohm

R T344 2332 150n 3332 10K
(forseen only) 2334 150n
4334
3334 6K8
2336 220p (forseen only)
L T343 2331 150n 3331 10K
(forseen only) 2333 150n
4333
3333 6K8
2335 220p (forseen only)
from Source Selection and Sound Control Part

5334 360n
3346 10K
3338 2R2
2340 220n
5332 360n
3344 10K
3336 2R2
2338 220n
5331 360n
3343 10K
3335 2R2
2337 220n
5333 360n
3345 10K
3337 2R2
2339 220n

1331
2345 22n
T339 L 1
T341 L 2
T342 R 3
T340 R 4
2346 22n
8R LS BOX left
8R LS BOX right
Clickfit socket

+12V
3348 22K
3347 22K
POWERSTAGE PROTECTION
3349 47K
MC148 7.2V
BC857B 7332
BC857B 7331
MC148 7.2V
6.2V
6.2V
T336
T335
2353 680p
0V
2354 680p
T331

2348 47u
2347 47u
6332 1N4148
6331 1N4148
3352 1K
3351 1K
BASS_ALC
T334
3353 47R
2349 100u
to 3547/3548 DIGITAL SOUND CONTROL (DSC)

STANDBY
6333 1N4148
3359 6K8
3361 100R
2352 47u
3360 100K
7333 BC847B
3350 47K

*

Item / Model	2355	3339 3340	3341 3342	3362	3363	3364	3365	6334	7335
MC-1xx	100u	68	4K7	1K8	10K	390	270	BZX55-B11	BDW93CFP
MC-200	X	120	560	X	X	X	X	X	X

(230V MAINS SUPPLY) DC VOLTAGES MEASURED IN :

V CD Mode 1KHz , 0dB track, DSC "OPTIMAL", DBB "OFF", INCR "OFF", VOLUME "20"
V Tuner Mode 1KHz , df "22.5kHz", DSC "OPTIMAL", DBB "OFF", INCR "OFF", VOLUME "20"
V Standby Mode
V MUTE OFF/ON

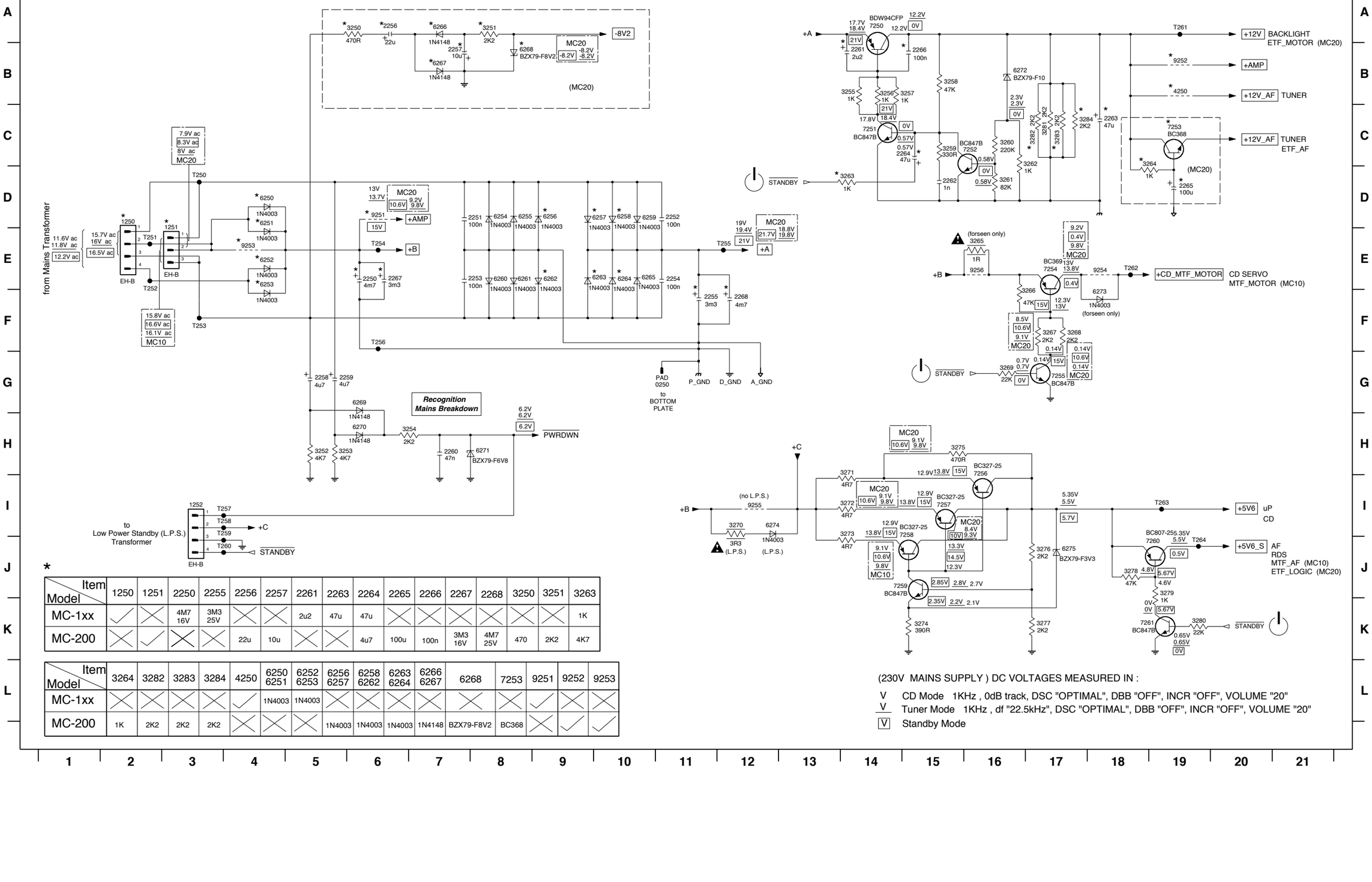
10 - 3

CIRCUIT DIAGRAM - COMBI BOARD (Part 3)

0250 G11 2250 E6 2254 E11 2258 G5 2262 D15 2266 B15 3251 A8 3255 B14 3259 C15 3263 D14 3267 F17 3271 H14 3275 H15 3279 J19 3283 C17 6251 D4 6255 D8 6259 D10 6263 E10 6267 B7 6271 H8 6275 J17 7253 C19 7257 I15 7261 K19 9254 E18 T251 E2 T255 E12 T259 I4 T263 I19
1250 D2 2251 D8 2255 F11 2259 G5 2263 C18 2267 E6 3252 H5 3256 B14 3260 C16 3264 C19 3268 F17 3272 I14 3276 J17 3280 K19 3284 C17 6252 E4 6256 D9 6260 E8 6264 E10 6268 B8 6272 B16 7250 A14 7254 E17 7258 I14 9251 D6 9255 I12 T252 F2 T256 F6 T260 J4 T264 J19
1251 E3 2252 D11 2256 A6 2260 H7 2264 C15 2268 F12 3253 H5 3257 B15 3261 D16 3265 E16 3269 G16 3273 I14 3277 K17 3281 C17 6253 E4 6257 D10 6261 E8 6265 E10 6269 G6 6273 E18 7251 C14 7255 G17 7259 J15 9252 B19 9256 E16 T253 F3 T257 I4 T261 A19
1252 I3 2253 E8 2257 B7 2261 B14 2265 D19 3250 A6 3254 H7 3258 B15 3262 C17 3266 F17 3270 I12 3274 K15 3278 J18 3282 C17 6250 D4 6254 D8 6258 D10 6262 E9 6266 A7 6270 H6 6274 I12 7252 C16 7256 H16 7260 J18 9253 E4 T250 D3 T254 E6 T258 I4 T262 E18

COMBI BOARD

Supply part



*

Item / Model	1250	1251	2250	2255	2256	2257	2261	2263	2264	2265	2266	2267	2268	3250	3251	3263
MC-1xx	✓	✗	4M7 16V	3M3 25V	✗	✗	2u2	47u	47u	✗	✗	✗	✗	✗	✗	1K
MC-200	✗	✓	✗	✗	22u	10u	✗	✗	4u7	100u	100n	3M3 16V	4M7 25V	470	2K2	4K7

Item / Model	3264	3282	3283	3284	4250	6250 6251	6252 6253	6256 6257	6258 6262	6263 6264	6266 6267	6268	7253	9251	9252	9253
MC-1xx	✗	✗	✗	✗	✓	1N4003	1N4003	✗	✗	✗	✗	✗	✗	✓	✗	✗
MC-200	1K	2K2	2K2	2K2	✗	✗	✗	1N4003	1N4003	1N4003	1N4148	BZX79-F8V2	BC368	✗	✓	✓

(230V MAINS SUPPLY) DC VOLTAGES MEASURED IN :

V CD Mode 1KHz , 0dB track, DSC "OPTIMAL", DBB "OFF", INCR "OFF", VOLUME "20"

V Tuner Mode 1KHz , df "22.5kHz", DSC "OPTIMAL", DBB "OFF", INCR "OFF", VOLUME "20"

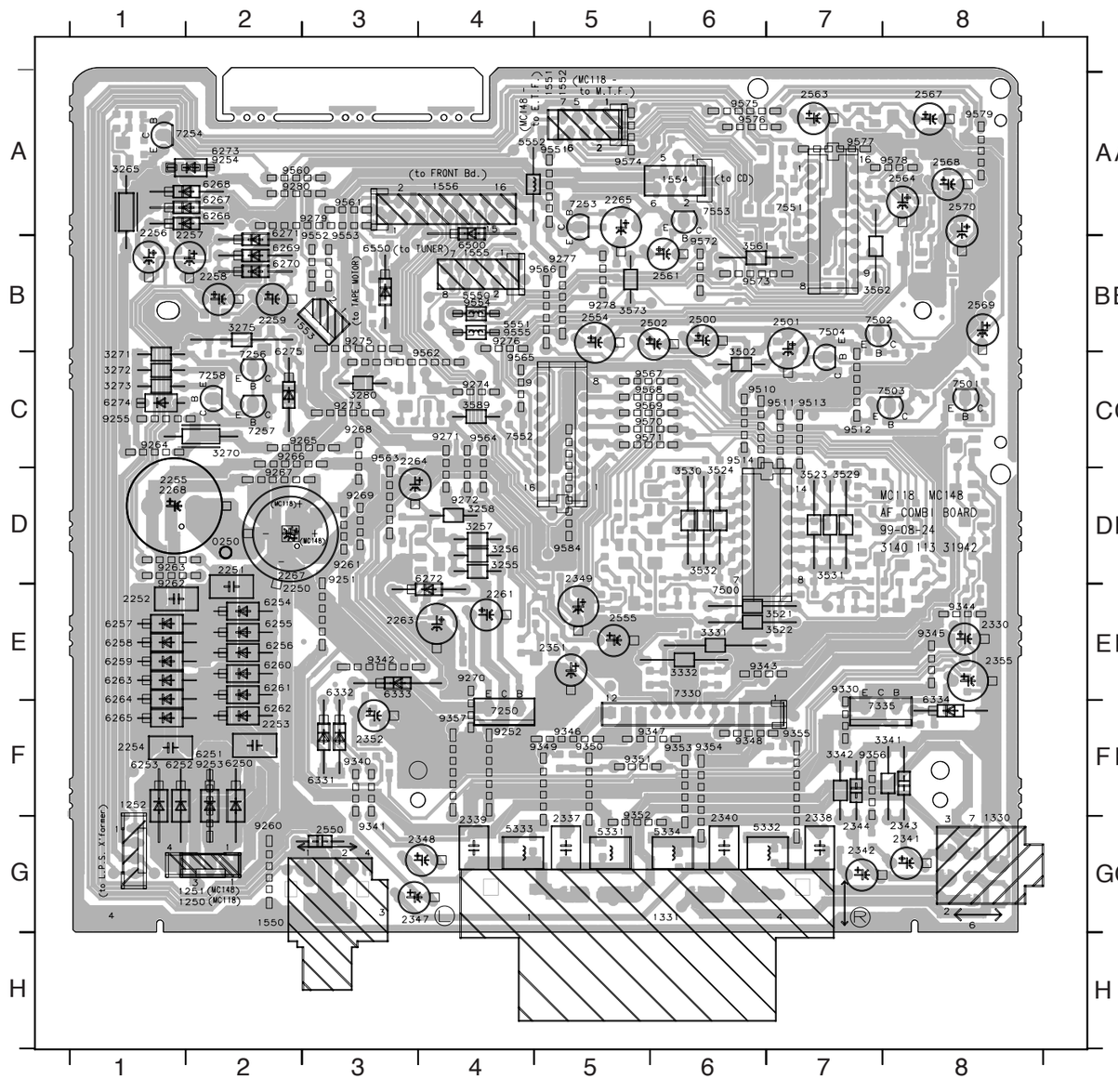
[V] Standby Mode

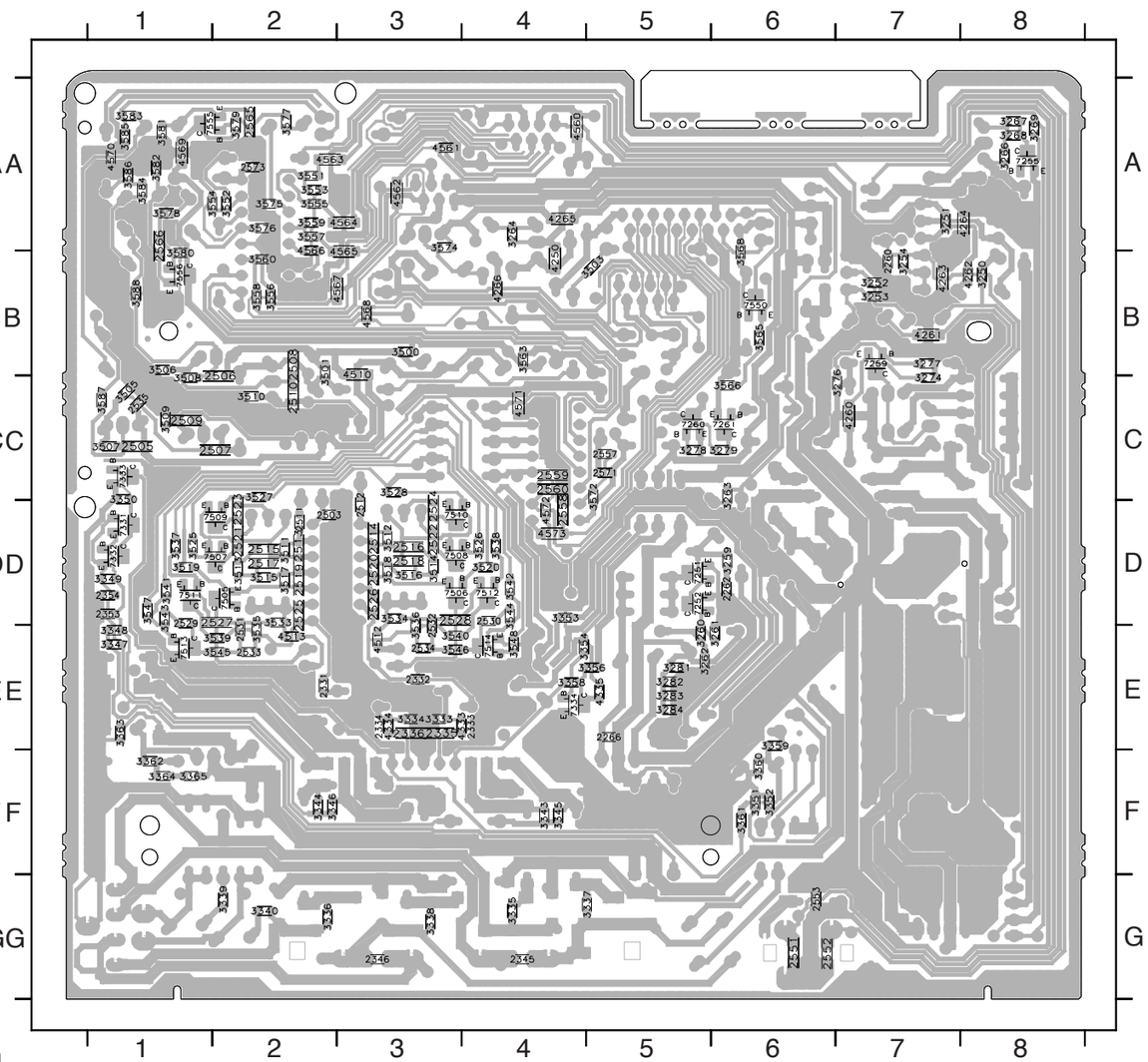
10 - 4

LAYOUT DIAGRAM - COMBI BOARD

0250 D2 2254 F1 2341 G8 2563 A7 3331 E6 5331 G5 6260 E2 6332 E3 7504 B7 9268 C3 9343 E6 9512 C7 9569 C5
1250 G2 2255 D1 2342 G7 2564 A8 3332 E6 5332 G7 6261 E2 6333 E3 7551 A7 9269 D3 9344 E8 9513 C7 9570 C5
1251 G2 2256 A1 2343 G8 2567 A8 3341 F8 5333 G4 6262 F2 6334 E8 7552 C4 9270 E4 9345 E8 9514 C6 9571 C5
1252 F1 2257 A2 2344 G7 2568 A8 3342 F7 5334 G6 6263 E1 6500 B4 7553 A6 9271 C4 9346 F5 9551 A5 9572 B6
1330 G8 2258 B2 2347 G3 2569 B8 3502 C6 5550 B4 6264 E1 6550 B3 9251 D3 9272 D4 9347 F6 9552 B3 9573 B6
1331 G6 2259 B2 2348 G4 2570 A8 3521 E7 5551 B4 6265 F1 7250 F4 9252 F4 9273 C3 9348 F6 9553 B3 9574 A5
1550 G2 2261 E4 2349 D5 3255 D4 3522 E7 5552 A4 6266 A2 7253 A5 9253 F2 9274 C4 9349 F5 9554 B4 9575 A6
1551 A5 2263 E3 2351 E5 3256 D4 3523 D7 6250 F2 6267 A2 7254 A2 9254 A2 9275 B3 9350 F5 9555 B4 9576 A6
1552 A5 2264 C3 2352 F3 3257 D4 3524 D6 6251 F2 6268 A2 7256 C2 9255 C1 9276 B4 9351 F5 9560 A2 9577 A7
1553 B3 2265 A5 2355 E8 3258 D4 3529 D7 6252 F1 6269 B2 7257 C2 9260 G2 9277 B5 9352 F5 9561 A3 9578 A8
1554 A6 2267 D2 2500 B6 3265 A1 3530 D6 6253 F1 6270 B2 7258 C2 9261 D3 9278 B5 9353 F6 9562 C4 9579 A8
1555 B4 2268 D1 2501 B7 3270 C2 3531 D7 6254 E2 6271 A2 7330 E6 9262 D1 9279 A3 9354 F6 9563 C3 9584 D5
1556 A4 2330 E8 2502 B6 3271 C1 3532 D6 6255 E2 6272 D4 7335 F7 9263 D1 9280 A2 9355 F7 9564 C4
2250 E2 2337 G5 2550 G3 3272 C1 3561 B6 6256 E2 6273 A2 7500 E6 9264 C1 9330 E7 9356 F7 9565 C4
2251 D2 2338 G7 2554 B5 3273 C1 3562 B7 6257 E1 6274 C1 7501 C8 9265 C3 9340 F3 9357 F4 9566 B5
2252 E1 2339 G4 2555 E5 3275 B2 3573 B5 6258 E1 6275 C2 7502 B7 9266 C2 9341 G3 9510 C6 9567 C5
2253 F2 2340 G6 2561 B6 3280 C3 3589 C4 6259 E1 6331 F3 7503 C8 9267 D2 9342 E3 9511 C7 9568 C5

2260 B7 2509 C1 2527 D2 2571 C5 3276 C7 3345 F4 3365 F1 3519 D1 3545 E2 3572 C5 4261 B7 4566 A2 7505 D2
2262 D6 2510 C2 2528 D3 2573 A2 3277 B7 3346 F2 3500 B3 3520 D4 3546 E3 3574 A3 4262 B8 4567 B3 7506 D3
2266 E5 2511 D2 2529 D1 3250 B8 3278 C5 3347 E1 3501 B2 3525 D1 3547 D1 3575 A2 4263 B7 4568 B3 7507 D2
2331 E2 2512 D3 2530 D4 3251 A7 3279 C6 3348 E1 3503 B5 3526 D4 3548 E4 3576 A2 4264 A8 4569 A1 7508 D3
2332 E3 2513 D2 2531 E2 3252 B7 3281 E5 3349 D1 3505 C1 3527 C2 3551 A2 3577 A2 4265 A4 4570 A1 7509 D2
2333 E4 2514 D3 2532 E3 3253 B7 3282 E5 3350 C1 3506 B1 3528 C3 3552 A2 3578 A1 4266 B4 4571 C4 7510 D3
2334 E3 2515 D2 2533 E2 3254 B7 3283 E5 3351 F6 3507 C1 3533 D2 3553 A2 3579 A2 4333 E4 4572 D4 7511 D1
2335 E3 2516 D3 2534 E3 3259 D6 3284 E5 3352 F6 3508 C1 3534 D3 3554 A2 3580 B1 4334 E3 4573 D4 7512 D4
2336 E3 2517 D2 2535 C1 3260 E5 3333 E3 3353 D4 3509 C1 3535 E2 3555 A2 3581 A1 4335 E5 7251 D5 7513 E1
2345 G4 2518 D3 2551 G6 3261 E6 3334 E3 3354 E4 3510 C2 3536 E3 3556 B2 3582 A1 4510 B3 7252 D5 7514 E4
2346 G3 2519 D2 2552 G6 3262 E5 3335 G4 3356 E5 3511 D2 3537 D1 3557 A2 3583 A1 4512 E3 7255 A8 7550 B6
2353 D1 2520 D3 2553 G6 3263 C6 3336 G2 3358 E4 3512 D3 3538 D4 3558 B2 3584 A1 4513 E2 7259 B7 7555 A1
2354 D1 2521 D2 2557 C5 3264 A4 3337 G5 3359 E6 3513 D2 3539 E2 3559 A2 3585 A1 4560 A4 7260 C5 7556 B1
2503 D2 2522 D3 2558 D4 3266 A8 3338 G3 3360 F6 3514 D3 3540 E3 3560 B2 3586 A1 4561 A3 7261 C6
2505 C1 2523 D2 2559 C4 3267 A8 3339 G2 3361 F6 3515 D2 3541 D1 3563 B4 3587 C1 4562 A3 7331 D1
2506 C2 2524 D3 2560 C4 3268 A8 3340 G2 3362 F1 3516 D3 3542 D4 3565 B6 3588 B1 4563 A2 7332 D1
2507 C2 2525 D2 2565 A2 3269 A8 3343 F4 3363 E1 3517 D2 3543 D1 3566 C6 4250 B4 4564 A3 7333 C1
2508 B2 2526 D3 2566 A1 3274 C7 3344 F2 3364 F1 3518 D3 3544 D4 3568 B6 4260 C7 4565 B3 7334 E4

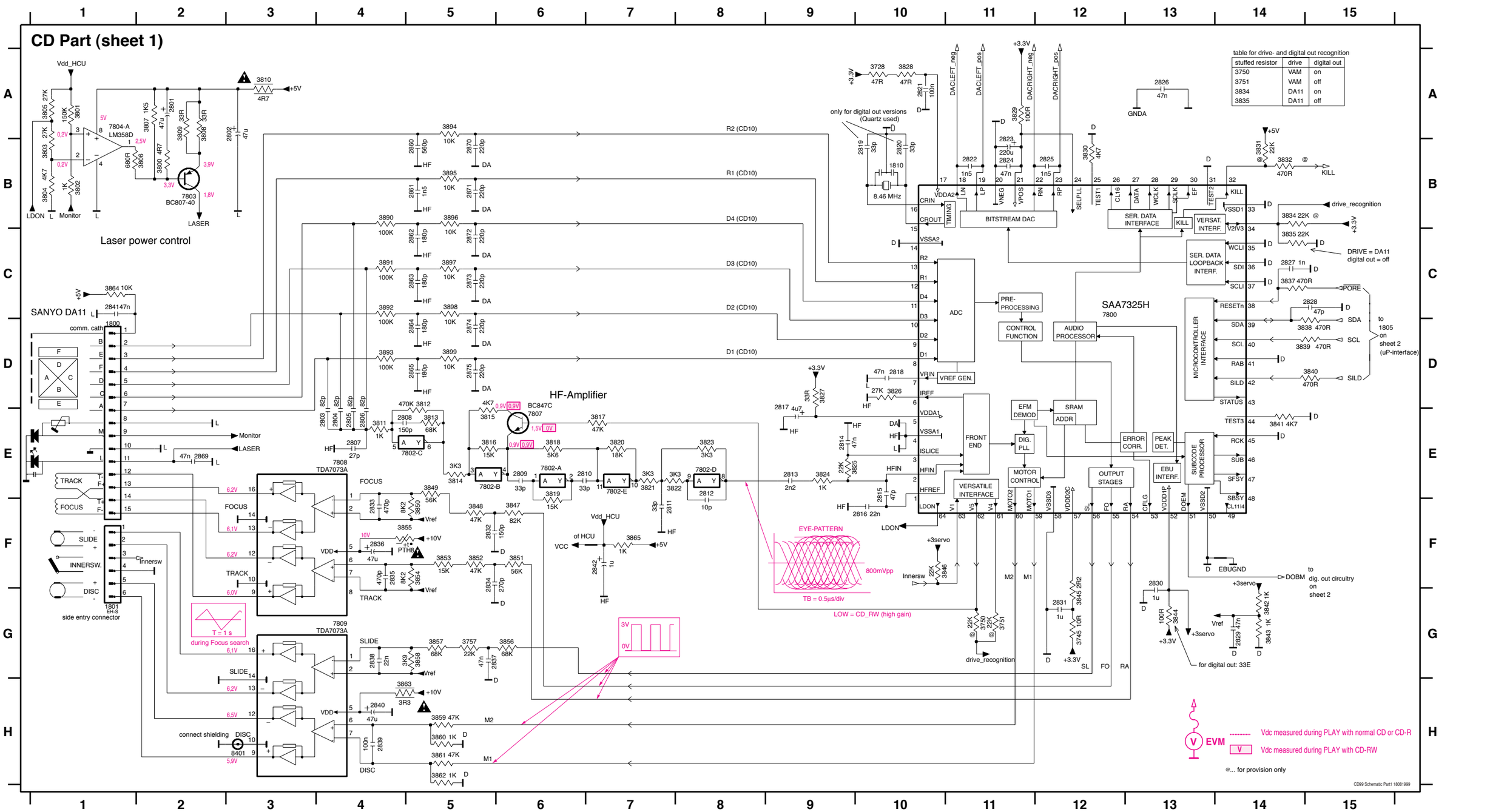




11 - 1

CIRCUIT DIAGRAM - CD99/DA11 BOARD (Part 1)

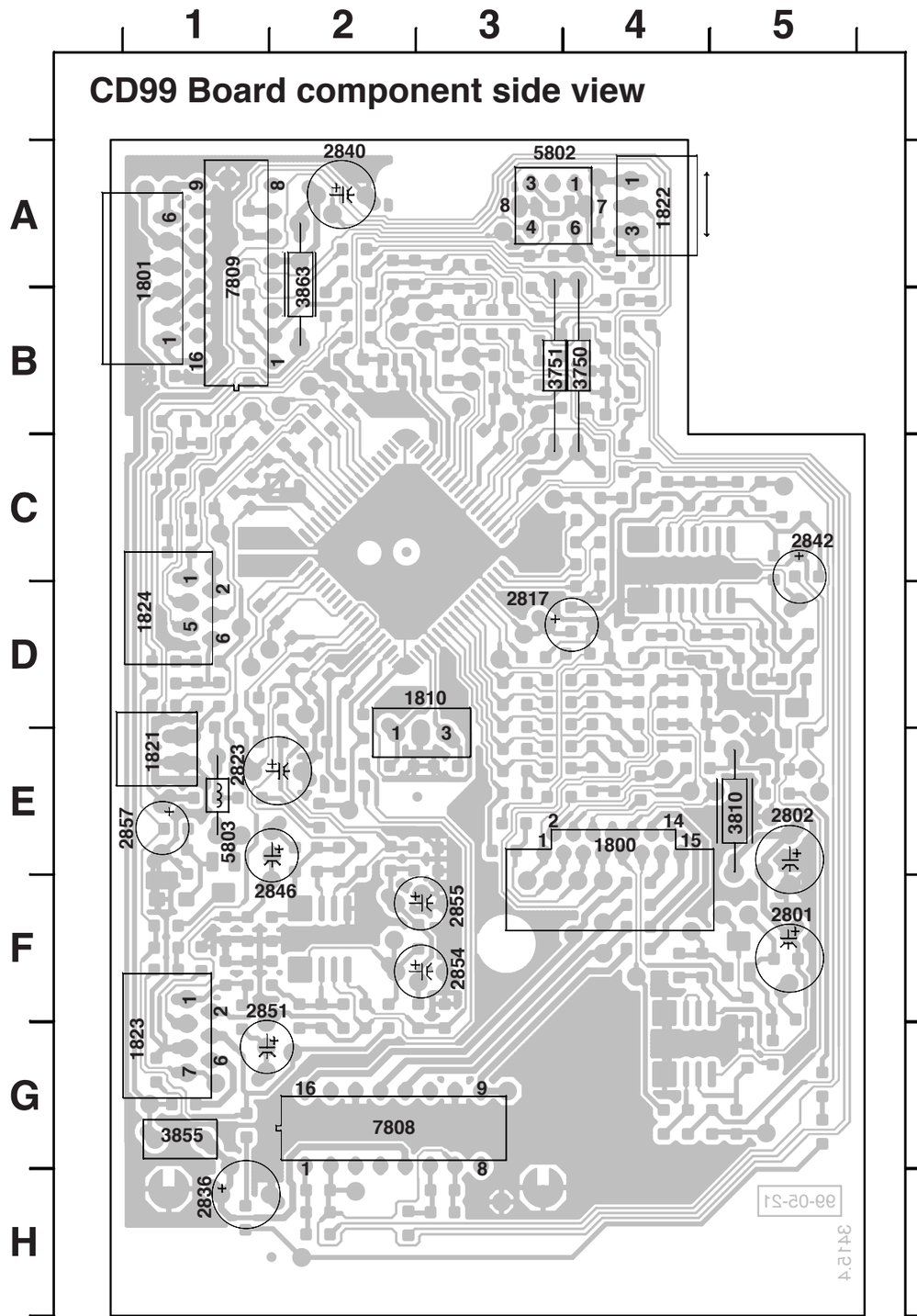
1800 D1	2806 E4	2813 E9	2820 B10	2827 C14	2834 F5	2841 C1	2865 D5	2875 D5	3801 A1	3808 A2	3815 E5	3822 E7	3829 A11	3838 D14	3845 G12	3852 F5	3859 H5	3890 B4	3897 C5	7802-D E8	7808 E4
1801 G1	2807 E4	2814 E9	2821 B11	2828 C14	2835 F4	2842 F7	2869 E2	3728 A10	3802 B1	3809 A2	3816 E5	3823 E8	3830 B12	3839 D14	3846 F10	3853 F5	3860 H5	3891 C4	3898 C5	7802-E E7	7809 G4
2801 A2	2808 E4	2815 E10	2822 B11	2829 G14	2836 F4	2860 B5	2870 B5	3745 G12	3803 B1	3810 A3	3817 E7	3824 E9	3831 B14	3840 D15	3847 F6	3854 F5	3861 H5	3892 C4	3899 D5	7802-F F8	8401 H3
2802 A3	2809 E6	2816 F10	2823 B11	2830 F13	2837 G5	2861 B5	2871 B5	3750 G11	3804 B1	3811 E4	3818 E6	3825 E9	3832 B14	3841 E14	3848 F5	3855 F4	3862 H5	3893 D4	7800 D12	7803 B2	
2803 E4	2810 E6	2817 D9	2824 B11	2831 G12	2838 G4	2862 C5	2872 C5	3751 G11	3805 A1	3812 D5	3819 E6	3826 D10	3834 B14	3842 G14	3849 E5	3856 G6	3863 H4	3894 A5	7802-A E6	7804-A A1	
2804 E4	2811 F7	2818 D9	2825 B12	2832 F5	2839 H4	2863 C5	2873 C5	3757 G5	3806 B2	3813 E5	3820 E7	3827 D9	3835 C14	3843 G14	3850 F5	3857 G5	3864 C1	3895 B5	7802-B E5	7804-B C3	
2805 E4	2812 E8	2819 B10	2826 A13	2833 F4	2840 H4	2864 D5	2874 D5	3800 B2	3807 A2	3814 E5	3821 E7	3828 A10	3837 C14	3844 G13	3851 F6	3858 G5	3865 F7	3896 B5	7802-C E5	7807 E6	



11 - 2

LAYOUT DIAGRAM - CD99/DA11 BOARD

CD99 Board component side view

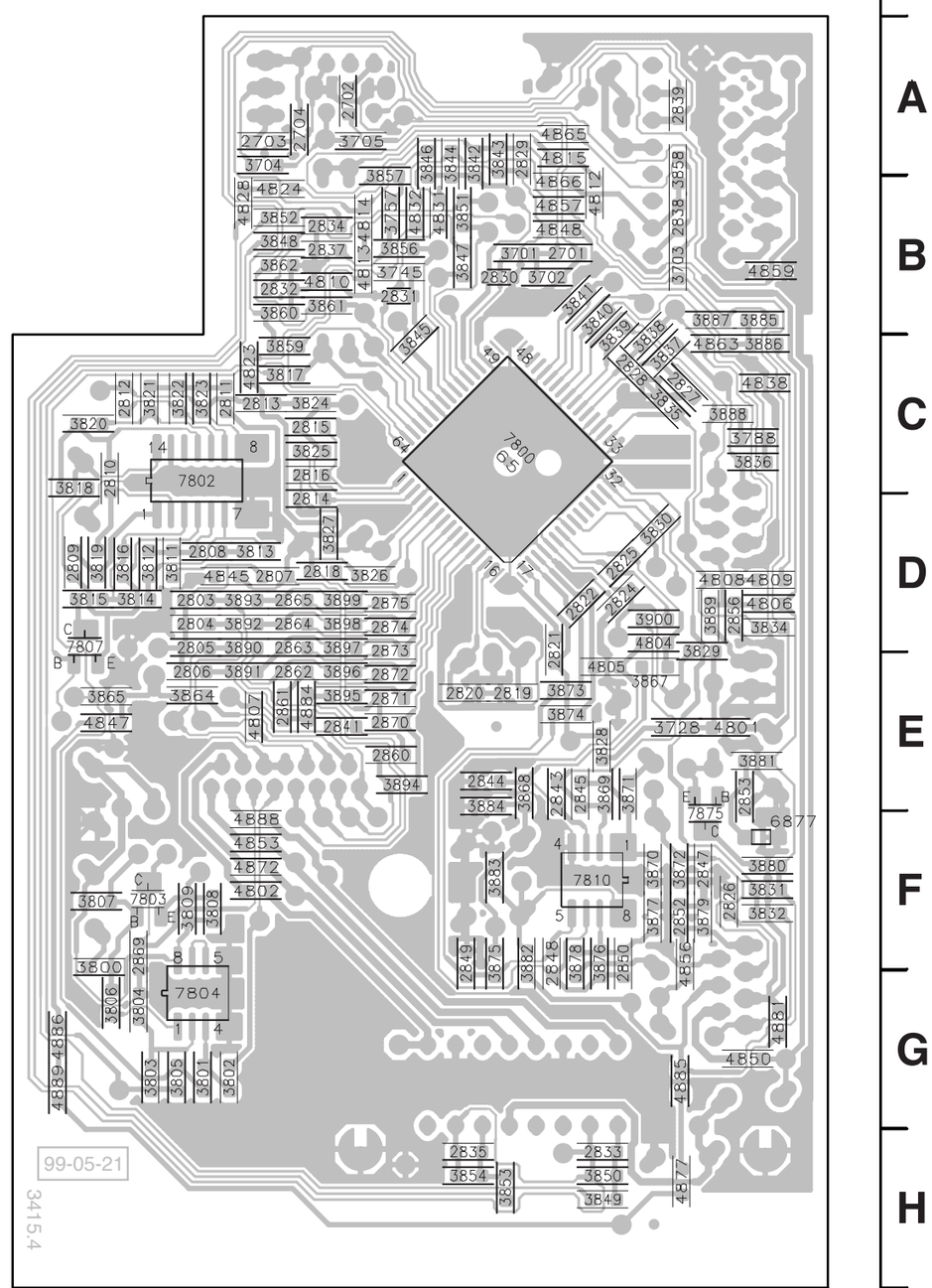


1800	F2	3703	B5	3876	F4	2704	B4	3829	D5	4823	C2
1801	A5	3704	A2	3877	F4	2805	D2	3830	D4	4824	B2
1810	D3	3705	A3	3878	F4	2806	E1	3831	F5	4828	B2
1821	E5	3728	E5	3879	F5	2807	D2	3832	F5	4831	B3
1822	A2	3745	B3	3880	F5	2808	D2	3834	D5	4832	B3
1823	G5	3750	B2	3881	E5	2809	D1	3835	C4	4838	C5
1824	D5	3751	B2	3882	F4	2810	C1	3836	C5	4845	D2
2701	B4	3757	B3	3883	F3	2811	C2	3837	C4	4847	E1
2702	A2	3788	C5	3884	E3	2812	C1	3838	C4	4848	B4
2703	A2	3800	F1	3885	B5	2813	C2	3839	C4	4850	G5
2704	A2	3801	G2	3886	C5	2814	D2	3840	B4	4853	F2
2801	F1	3802	G2	3887	B5	2815	C2	3841	B4	4856	F5
2802	E1	3803	G1	3888	C5	2816	C2	3842	A3	4857	B4
2803	D2	3804	G1	3889	D5	2817	D2	3843	A3	4859	B5
2804	D2	3805	G1	3890	D2	2818	D2	3844	A3	4863	C5
2805	D2	3806	G1	3891	E2	2819	E4	3845	C3	4865	A4
2806	E1	3807	F1	3892	D2	2820	E3	3846	A3	4866	B4
2807	D2	3808	F2	3893	D2	2821	D4	3847	B3	4872	F2
2808	D2	3809	F1	3894	E3	2822	D4	3848	B2	4877	H5
2809	D1	3810	E1	3895	E2	2823	E4	3849	H4	4881	G5
2810	C1	3811	D1	3896	E2	2824	D4	3850	H4	4884	E2
2811	C2	3812	D1	3897	D2	2825	D4	3851	B3	4885	G5
2812	C1	3813	D2	3898	D2	2826	F5	3852	B2	4886	G1
2813	C2	3814	D1	3899	D2	2827	C5	3853	H3	4888	F2
2814	D2	3815	D1	3900	D4	2828	C4	3854	H3	4889	G1
2815	C2	3816	D1	4801	E5	2829	A4	3855	G5	5802	A2
2816	C2	3817	C2	4802	F2	2830	B3	3856	B3	5803	E5
2817	D2	3818	C1	4804	D4	2831	B3	3857	B3	6877	F5
2818	D2	3819	D1	4805	E4	2832	B2	3858	A5	7800	C4
2819	E4	3820	C1	4806	D5	2834	D5	3859	C2	7802	C2
2820	E3	3821	C1	4807	E2	2835	H4	3860	B2	7803	F1
2821	D4	3822	C1	4808	D5	2836	G5	3861	B2	7804	G2
2822	D4	3823	C2	4809	D5	2837	B2	3862	B2	7807	D1
2823	E4	3824	C2	4810	B2	2838	B5	3863	A4	7808	G4
2824	D4	3825	C2	4812	B4	2839	A5	3864	E1	7809	A5
2825	D4	3826	D3	4813	B3	2840	A4	3865	E1	7810	F4
2826	F5	3827	D2	4814	B3	2841	E2	3867	E4	7875	F5
2827	C5	3828	E4	4815	A4	2842	C1	3868	E4	8401	H3
2828	C4	3829	D5	4823	C2	2843	E4	3869	E4	8402	H5
2829	A4	3830	D4	4824	B2	2844	E3	3870	F4		
2830	B3	3831	F5	4828	B2	2845	E4	3871	E4		
2831	B3	3832	F5	4831	B3	2846	E4	3872	F5		
2832	B2	3834	D5	4832	B3	2847	F5	3873	E4		
2833	H4	3835	C4	4838	C5	2848	F4	3874	E4		
2834	B2	3836	C5	4845	D2	2849	F3	3875	F3		
2835	H3	3837	C4	4847	E1	2850	F4	3876	F4		
2836	G5	3838	C4	4848	B4	2851	G4	3877	F4		
2837	B2	3839	C4	4850	G5	2852	F5	3878	F4		
2838	B5	3840	B4	4853	F2	2853	E5	3879	F5		
2839	A5	3841	B4	4856	F5	2854	F3	3880	F5		
2840	A4	3842	A3	4857	B4	2855	E3	3881	E5		
2841	E2	3843	A3	4859	B5	2856	D5	3882	F4		
2842	C1	3844	A3	4863	C5	2857	E5	3883	F3		
2843	E4	3845	C3	4865	A4	2860	E3	3884	E3		
2844	E3	3846	A3	4866	B4	2861	E2	3885	B5		
2845	E4	3847	B3	4872	F2	2862	E2	3886	C5		
2846	E4	3848	B2	4877	H5	2863	D2	3887	B5		
2847	F5	3849	H4	4881	G5	2864	D2	3888	C5		
2848	F4	3850	H4	4884	E2	2865	D2	3889	D5		
2849	F3	3851	B3	4885	G5	2869	F1	3900	D4		
2850	F4	3852	B2	4886	G1	2870	E3	4801	E5		
2851	G4	3853	H3	4888	F2	2871	E3	4802	F2		
2852	F5	3854	H3	4889	G1	2872	E3	4804	D4		
2853	E5	3855	G5	5802	A2	2873	D3	4805	E4		
2854	F3	3856	B3	5803	E5	2874	D3	4806	D5		
2855	E3	3857	B3	6877	F5	2875	D3	4807	E2		
2856	D5	3858	A5	7800	C4	3701	B4	4808	D5		
2857	E5	3859	C2	7802	C2	3702	B4	4809	D5		
2860	E3	3860	B2	7803	F1	3703	B5	4810	B2		
2861	E2	3861	B2	7804	G2	3704	A2	4812	B4		
2862	E2	3862	B2	7807	D1	3705	A3	4813	B3		
2863	D2	3863	A4	7808	G4	3728	E5	4814	B3		
2864	D2	3864	E1	7809	A5	3745	B3	4815	A4		
2865	D2	3865	E1	7810	F4	3750	B2	4823	C2		
2869	F1	3867	E4	7875	F5	3751	B2	4824	B2		
2870	E3	3868	E4	8401	H3	3757	B3	4828	B2		
2871	E3	3869	E4	8402	H5	3788	C5	4831	B3		
2872	E3	3870	F4			3800	F1	4832	B3		
2873	D3	3871	E4			3801	G2	4838	C5		
2874	D3	3872	F5			3802	G2	4845	D2		
2875	D3	3873	E4			3803	G1	4847	E1		
3701	B4	3874	E4			3804	G1	4848	B4		
3702	B4	3875	F3			3805	G1	4850	G5		

This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

CD99 Layout stage .4 990817

CD99 Board copper side view



This assembly drawing shows a summary
of all possible versions.
For components used in a specific version
see schematic diagram respectively partslist.

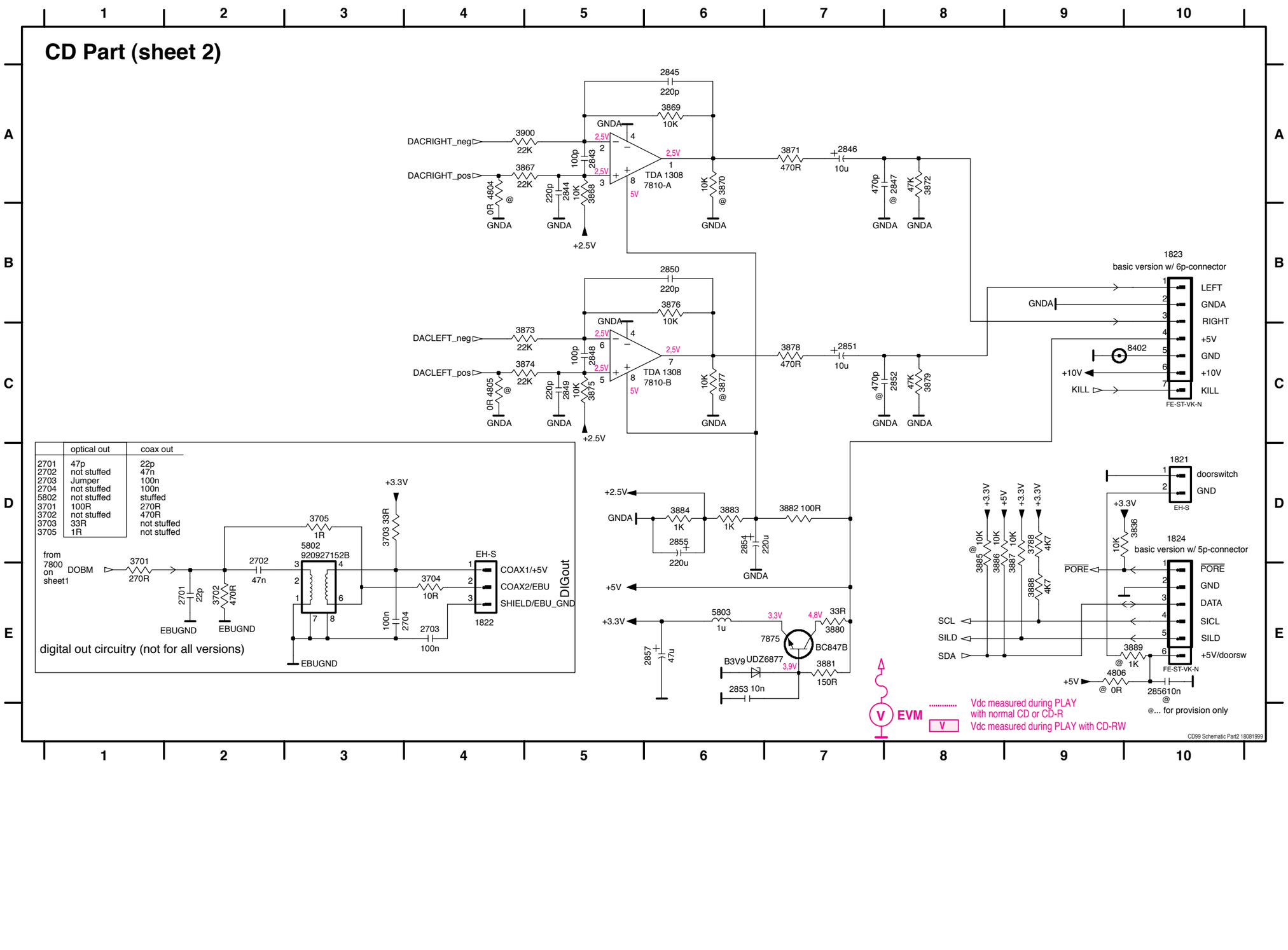
CD99 Layout stage .4 990817

11 - 3

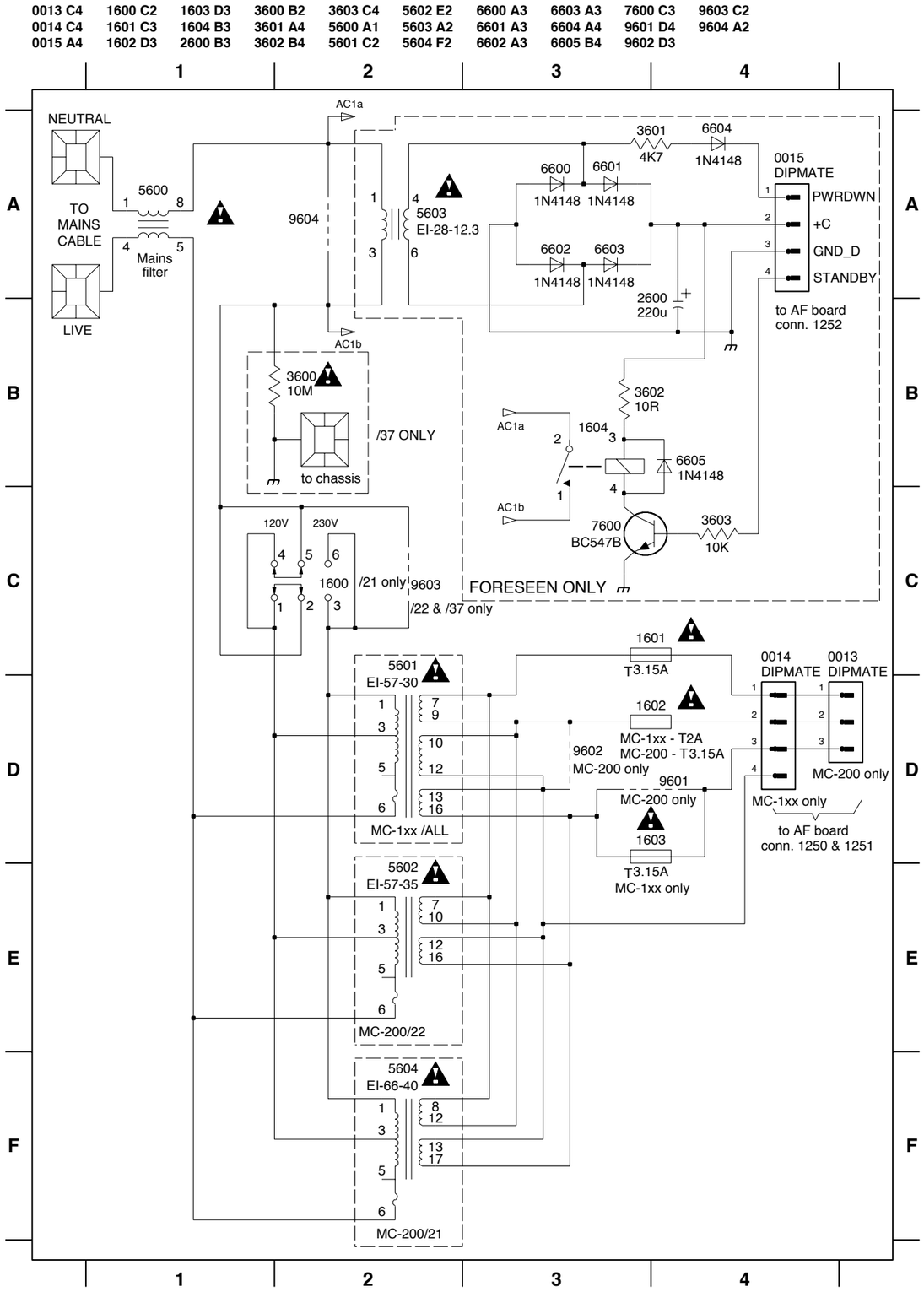
CIRCUIT DIAGRAM - CD99/DA11 BOARD (Part 2)

1821 D10	2702 E2	2845 A6	2850 B6	2855 D6	3703 D3	3867 A5	3872 A8	3877 C6	3882 D7	3887 E9	4805 C4	7810-A A5
1822 E4	2703 E4	2846 A7	2851 C7	2856 E10	3704 E4	3868 A5	3873 C5	3878 C7	3883 D6	3888 E9	4806 E9	7810-B C5
1823 B10	2704 E3	2847 A8	2852 C8	2857 E6	3705 D3	3869 A6	3874 C5	3879 C8	3884 D6	3889 E10	5802 D3	7875 E7
1824 D10	2843 A5	2848 C5	2853 E6	3701 E1	3788 E9	3870 A6	3875 C5	3880 E7	3885 E8	3900 A5	5803 E6	8402 C9
2701 E2	2844 A5	2849 C5	2854 D6	3702 E2	3836 D10	3871 A7	3876 B6	3881 E7	3886 E8	4804 A4	6877 E7	

CD Part (sheet 2)

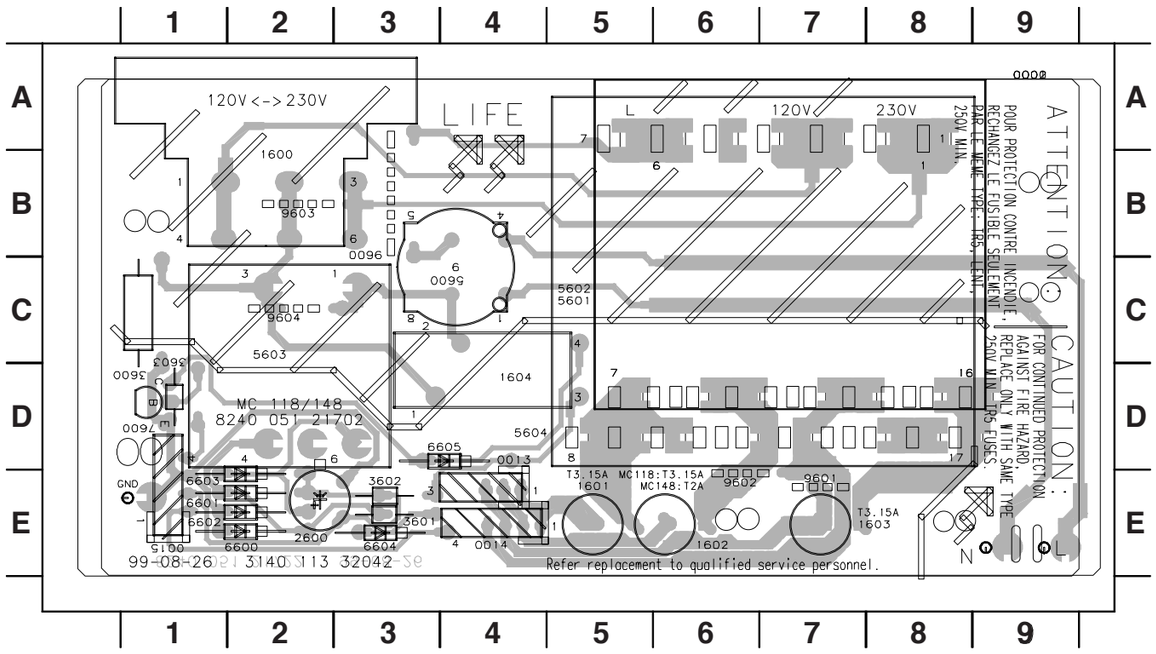


CIRCUIT DIAGRAM - POWER BOARD



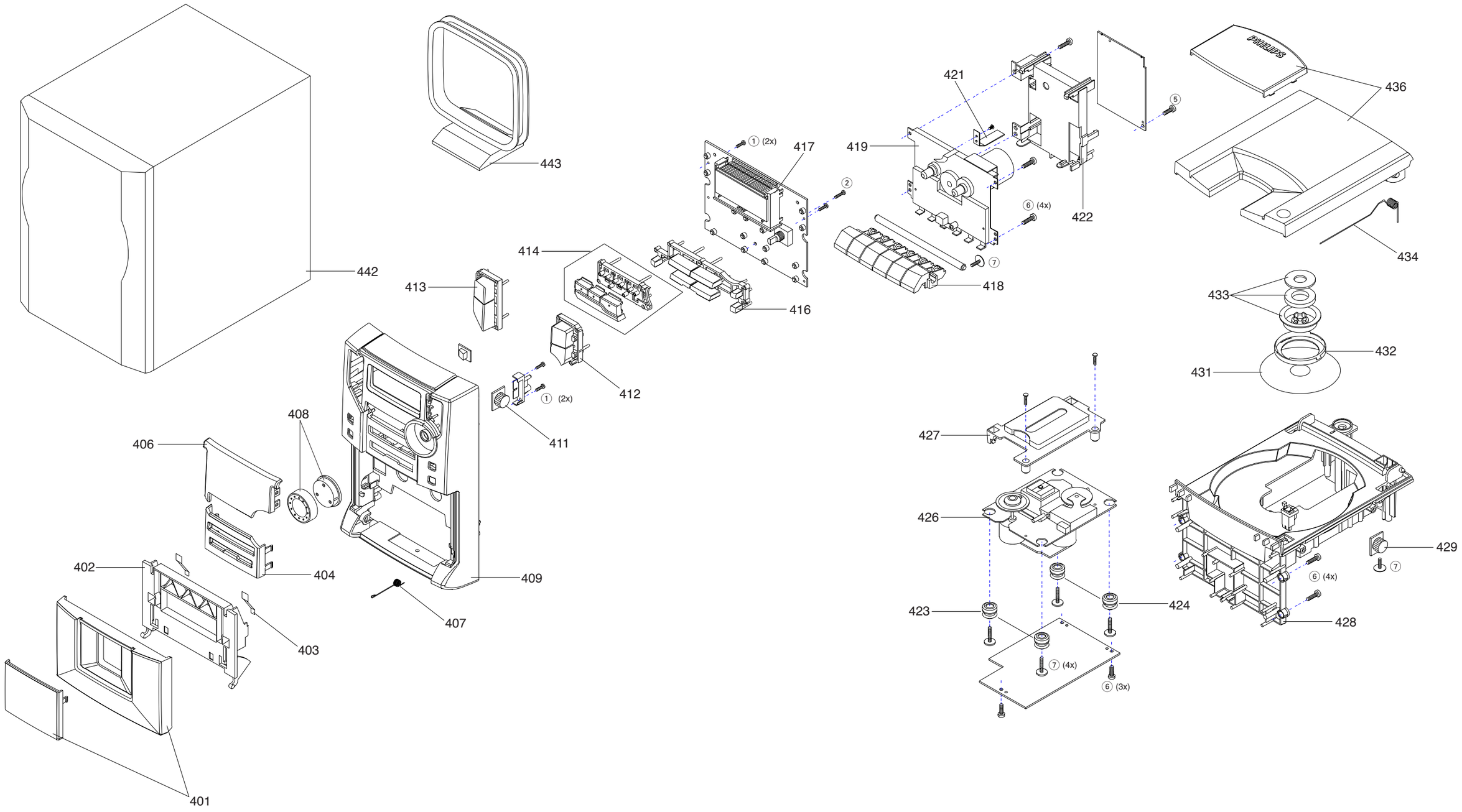
LAYOUT DIAGRAM - POWER BOARD

0000 A9	0015 E1	1604 D4	3603 C1	5604 D4	6604 E3	9602 E6
0001 A9	1600 B2	2600 E2	5600 C4	6600 E2	6605 D4	9603 B2
0002 A9	1601 E5	3600 D1	5601 C5	6601 E1	7600 D1	9604 C2
0013 D4	1602 E6	3601 E3	5602 C5	6602 E1	9600 B3	
0014 E4	1603 E8	3602 E3	5603 C2	6603 E1	9601 E7	


120V <-> 230V
LIFE
120V
230V
ATTENTION: CAUTION:
POUR PROTECTION CONTRE INCENDIE, REMPLACER LE FUSIBLE SEULEMENT PAR LE MEME TYPE: TR5, 1.6A, 250V MIN.
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE RECHANGEZ LE FUSIBLE SEULEMENT PAR LE MEME TYPE: TR5, 1.6A, 250V MIN. TR5 FUSES.
MC 118/148
8240 051 21702
T3.15A 1601
MC118:T3.15A MC148:T2A 9602
T3.15A 1603
Refer replacement to qualified service personnel.

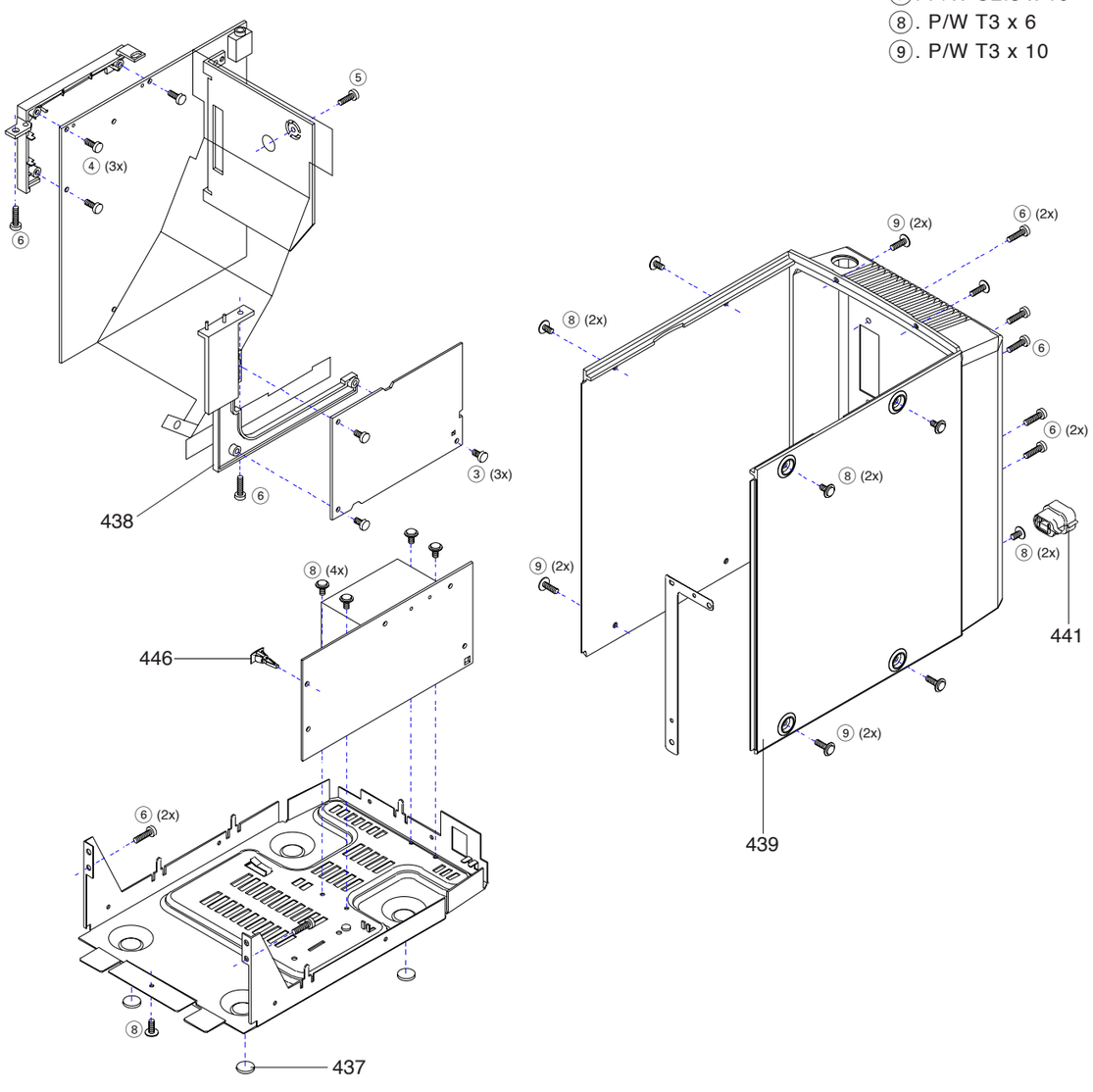
13 - 1

EXPLODED VIEW DIAGRAM

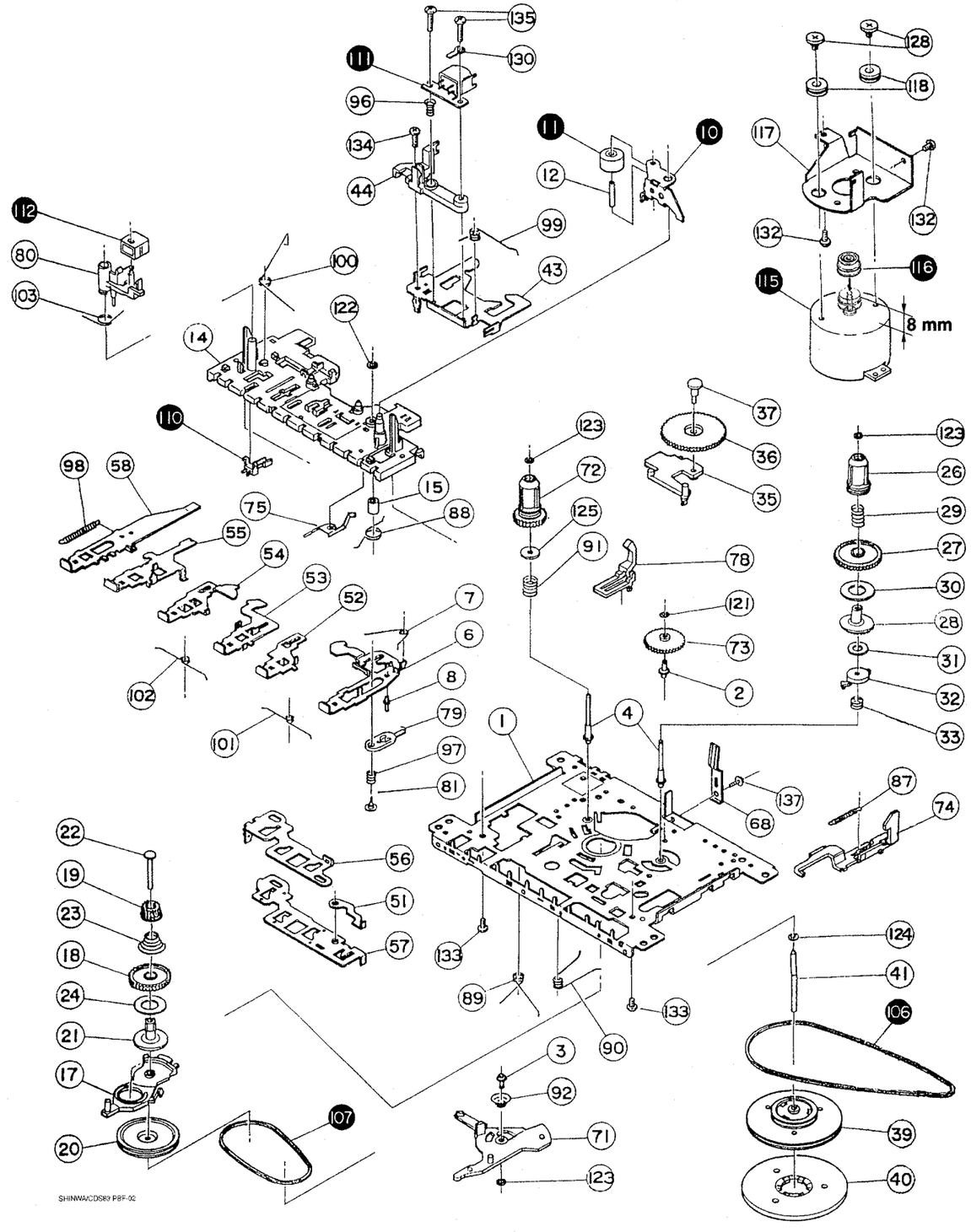


SCREW LIST

① . T2 x 10
② . T2.5 x 10
③ . T3 x 6
④ . T3 x 8
⑤ . T3 x10
⑥ . T3 x12
⑦ . P/W C2.5 x 10
⑧ . P/W T3 x 6
⑨ . P/W T3 x 10



EXPLODED VIEW DIAGRAM - TAPE DECK (CDS-83-PBF-06)



MECHANICAL PARTSLIST - MAIN SET

401	3140 117 62010	CASSETTE-DOOR ASSY	MC-100
401	3140 117 61940	CASSETTE-DOOR ASSY	MC-105
401	3140 117 62660	CASSETTE-DOOR ASSY	MC-110
402	4822 443 10215	DOOR CASSETTE	
403	4822 492 70231	SPRING-LEAF	
404	3140 114 40440	FRONT CABINET COVER	MC-100
404	3140 114 40280	FRONT CABINET COVER	MC-105
404	3140 114 41900	FRONT CABINET COVER	MC-110
406	3140 117 61990	FRONT WINDOW ASSY	MC-100
406	3140 117 61910	FRONT WINDOW ASSY	MC-105
406	3140 117 62750	FRONT WINDOW ASSY	MC-110
407	4822 492 42709	CASSETTE DOOR SPRING	
408	3140 117 61920	VOLUME KNOB ASSY	MC-100, MC-105
408	3140 117 61860	VOLUME KNOB ASSY	MC-110
409	3140 117 61970	FRONT CABINET ASSY (RDS)	MC-100/22
409	3140 117 61980	FRONT CABINET ASSY	MC-100/21/30
409	3140 117 62030	FRONT CABINET ASSY (USA)	MC-100/37
409	3140 117 61890	FRONT CABINET ASSY (RDS)	MC-105/22
409	3140 117 61900	FRONT CABINET ASSY	MC-105/21/33
409	3140 117 61960	FRONT CABINET ASSY (USA)	MC-105/37
409	3140 117 62740	FRONT CABINET ASSY (RDS)	MC-110/22
411	4822 529 10322	DAMPER ASSY	
412	3140 114 40420	FRONT KNOBS PROGRAM	MC-100
412	3140 114 40210	FRONT KNOBS PROGRAM	MC-105
412	3140 114 41920	FRONT KNOBS PROGRAM	MC-110
413	3140 114 40410	FRONT KNOBS SOURCE	MC-100
413	3140 114 40200	FRONT KNOBS SOURCE	MC-105
413	3140 114 41910	FRONT KNOBS SOURCE	MC-110
414	3140 117 62000	CHROME KNOBS ASSY	MC-100
414	3140 117 61930	CHROME KNOBS ASSY	MC-105
414	3140 117 61870	CHROME KNOBS ASSY	MC-110
416	3140 114 40450	FRONT KNOBS PRESET	MC-100
416	3140 114 40270	FRONT KNOBS PRESET	MC-105
416	3140 114 41930	FRONT KNOBS PRESET	MC-110
417	3140 114 29180	LCD HOLDER	
418	3140 114 34850	CASSETTE KEY SET	MC-100
418	3140 114 42020	CASSETTE KEY SET	MC-105
418	3140 114 41940	CASSETTE KEY SET	MC-110
419	4822 691 10633	CDS-83PBF-06	
421	3140 111 20800	SPRING-RECORDING	
422	3140 114 20430	BRACKET ECO-MTF-SD	
423	4822 529 10387	DAMPER - RUBBER (40 DEG)	
424	4822 529 10386	DAMPER - RUBBER (30 DEG)	
426	3103 309 05290	CD DA11N DRIVE ASSY	
428	3140 114 34770	CD-TRAY	MC-100, MC-110
428	3140 114 42590	CD-TRAY	MC-105
429	4822 529 10322	DAMPER ASSY	
431	4822 535 60096	DISC	
432	4822 532 13153	RING (CD LID)	
433	4822 532 12798	PRESSURE RING ASSY	
434	4822 492 11741	SPRING CD	
436	3140 117 62020	CD-DOOR ASSY	MC-100
436	3140 117 61950	CD-DOOR ASSY	MC-105
436	3140 117 62730	CD-DOOR ASSY	MC-110
437	4822 462 40692	RUBBER STAND	
438	3140 114 29310	TUNER BRACKET	
439	3140 114 40360	REAR CABINET	MC-100
439	3140 114 40510	REAR CABINET (USA)	MC-100/37
439	3140 114 40150	REAR CABINET	MC-105
439	3140 114 40330	REAR CABINET (USA)	MC-105/37

13 - 3

MECHANICAL PARTSLIST - MAIN SET

439	3140 114 34750	REAR CABINET	MC-110
441	3140 113 21880	MAINS CORD RELIEF	
441	3140 113 22100	MAINS CORD RELIEF	(/37 ONLY)
446	4822 466 93148	PCB SPACER	

MECHANICAL PARTSLIST - TAPE DECK

	4822 528 11189	PINCH ROLLER ASSY	
10	4822 528 70849	PINCH ROLLER ARM (B)	
11	4822 528 70695	ROLLER	
74	4822 403 30792	EJECT HOOK (B)	
106	4822 358 31325	MAIN BELT 45.2 X 1.2	
107	4822 358 31124	SUB BELT 44.7 X 1.2	
110	4822 278 90721	LEAF SWITCH	
111	4822 249 30218	R/P HEAD MS18R	
112	4822 249 40306	ERASE HEAD	
115	4822 361 21656	MOTOR EG-530AD-9B	
116	4822 528 81497	MOTOR PULLEY	
131	4822 276 13712	LEAF SWITCH LSA1115B	

Note: Only these parts mentioned in the list are normal service parts.

ACCESSORIES

442	3140 118 51030	SPEAKER BOX ASSY	MC-100/21/22/30
442	3140 118 51020	SPEAKER BOX ASSY /37	MC-100/37
442	3140 118 51050	SPEAKER BOX ASSY	MC-105/21/22/33
442	3140 118 51040	SPEAKER BOX ASSY /37	MC-105/37
442	3140 118 51070	SPEAKER BOX ASSY	MC-110/22
443	4822 303 50082	AM LOOP ANTENNA	
	4822 303 50063	FM AERIAL	
	4822 320 11094	FM AERIAL 300Ω	(/37 ONLY)
	3140 118 51010	IRT ASSY	MC-100. MC-105
	3140 118 51060	IRT ASSY	MC-110
	3140 115 28730	I.F.U./22	
	3140 115 28720	I.F.U./21/30	
	3140 115 28700	I.F.U./37	

ELECTRICAL PARTSLIST - FRONT BOARD

MISCELLANEOUS

1400	4822 276 13775	Push Switch
1401	4822 276 13775	Push Switch
1402	4822 276 13775	Push Switch
1403	4822 276 13775	Push Switch
1404	4822 276 13775	Push Switch
1405	4822 276 13775	Push Switch
1406	4822 276 13775	Push Switch
1407	4822 276 13775	Push Switch
1408	4822 276 13775	Push Switch
1409	4822 276 13775	Push Switch
1410	4822 276 13775	Push Switch
1411	4822 276 13775	Push Switch
1413	4822 276 13775	Push Switch
1414	4822 276 13775	Push Switch
1415	2422 129 16349	Rotary Rncoder 24P
1416	2422 025 14546	FFC Socket H 16P
1418	4822 265 11207	FFC Socket H 6P
1425	3140 110 51000	LCD Panel

CAPACITORS

2400	5322 126 11583	10nF 10% 50V
2401	5322 126 11583	10nF 10% 50V
2402	4822 124 23432	100µF 20% 10V
2403	4822 126 14305	100nF 10% 16V
2404	4822 124 23432	100µF 20% 10V
2405	5322 126 11583	10nF 10% 50V
2406	5322 126 11583	10nF 10% 50V
2407	4822 126 14305	100nF 10% 16V
2408	4822 126 14305	100nF 10% 16V
2409	5322 126 11583	10nF 10% 50V
2410	5322 126 11583	10nF 10% 50V
2411	4822 122 33752	15pF 5% NP0 50V
2412	4822 122 33752	15pF 5% NP0 50V
2413	4822 122 33777	47pF 5% NP0 63V
2414	5322 126 11583	10nF 10% 50V
2415	4822 126 11669	27pF 5% 50V
2416	4822 126 11669	27pF 5% 50V
2417	4822 124 40433	47µF 20% 25V
2418	5322 126 11578	1nF 10% 50V
2419	4822 126 14305	100nF 10% 16V
2420	5322 126 11583	10nF 10% 50V
2421	5322 126 11583	10nF 10% 50V
2422	4822 122 31765	100pF 2% NP0 63V
2423	4822 122 31765	100pF 2% NP0 63V
2424	4822 126 14305	100nF 10% 16V
2425	2222 867 15339	33pF 5% 50V
2426	4822 122 33761	22pF 5% NP0 50V
2427	4822 126 14249	560pF 10% 50V
2428	4822 124 22652	2,2µF 20% 50V
2429	4822 126 12787	330pF 10% 50V

CAPACITORS

2430	5322 126 11578	1nF 10% 50V
2431	4822 126 13193	4,7nF 10% 63V
2432	4822 122 31765	100pF 2% NP0 63V
2433	4822 126 13881	470pF 5% 50V
2434	4822 122 31765	100pF 2% NP0 63V
2435	4822 126 13881	470pF 5% 50V
2436	4822 126 13881	470pF 5% 50V
2437	4822 126 13881	470pF 5% 50V
2438	4822 126 13881	470pF 5% 50V
2439	4822 126 13881	470pF 5% 50V
2440	4822 126 14238	2,2nF 10% 50V
2441	5322 126 11583	10nF 10% 50V
2442	4822 126 13883	220pF 5% 50V
2443	4822 126 13883	220pF 5% 50V
2444	4822 126 13883	220pF 5% 50V
2445	4822 126 13883	220pF 5% 50V
2446	5322 126 11583	10nF 10% 50V
2449	4822 126 13881	470pF 5% 50V
2450	4822 126 13881	470pF 5% 50V
2451	4822 126 13881	470pF 5% 50V

RESISTORS

3400	4822 116 52176	10R 5% 0,5W
3401	4822 116 52182	15R 5% 0,5W
3402	4822 116 52175	100R 5% 0,5W
3403	4822 051 30682	6,8K 5% 0,062W
3404	4822 051 30332	3,3K 5% 0,062W
3405	4822 050 11002	1K 1% 0,4W
3406	4822 117 13632	100K 1% 0,62W
3407	4822 051 30102	1K 5% 0,062W
3408	4822 051 30474	470K 5% 0,062W
3409	4822 051 30103	10K 5% 0,062W
3410	4822 116 52175	100R 5% 0,5W
3411	4822 117 13632	100K 1% 0,62W
3412	4822 051 30103	10K 5% 0,062W
3413	4822 051 30102	1K 5% 0,062W
3414	4822 051 30333	33K 5% 0,062W
3415	4822 051 30153	15K 5% 0,062W
3416	4822 116 83872	220R 5% 0,5W
3417	4822 051 30153	15K 5% 0,062W
3418	4822 051 30152	1,5K 5% 0,062W
3419	4822 051 30152	1,5K 5% 0,062W
3420	4822 050 21003	10K 1% 0,6W
3421	4822 051 30562	5,6K 5% 0,063W
3422	4822 116 83883	470R 5% 0,5W
3423	4822 050 11002	1K 1% 0,4W
3424	4822 051 30152	1,5K 5% 0,062W

ELECTRICAL PARTSLIST - FRONT BOARD

RESISTORS

3425	4822 051 30222	2,2K 5% 0,062W
3426	4822 051 30332	3,3K 5% 0,062W
3427	4822 051 30562	5,6K 5% 0,063W
3428	4822 051 30103	10K 5% 0,062W
3429	4822 050 21003	10K 1% 0,6W
3430	4822 051 30562	5,6K 5% 0,063W
3431	4822 051 30471	470R 5% 0,062W
3432	4822 051 30102	1K 5% 0,062W
3433	4822 051 30152	1,5K 5% 0,062W
3434	4822 051 30222	2,2K 5% 0,062W
3435	4822 051 30332	3,3K 5% 0,062W
3436	4822 051 30562	5,6K 5% 0,063W
3437	4822 051 30223	22K 5% 0,062W
3438	4822 051 30223	22K 5% 0,062W
3439	4822 051 30102	1K 5% 0,062W
3440	4822 051 30102	1K 5% 0,062W
3441	4822 051 30102	1K 5% 0,062W
3442	4822 051 30333	33K 5% 0,062W
3443	4822 050 23303	33K 1% 0,6W
3444	4822 116 52175	100R 5% 0,5W
3445	4822 051 30222	2,2K 5% 0,062W
3446	4822 117 12891	220K 1% ERJ3E
3447	4822 051 30103	10K 5% 0,062W
3448	4822 116 52243	1,5K 5% 0,5W
3449	4822 116 52257	22K 5% 0,5W
3450	4822 051 30103	10K 5% 0,062W
3451	4822 051 30471	470R 5% 0,062W
3452	4822 051 30103	10K 5% 0,062W
3453	4822 051 30102	1K 5% 0,062W
3454	4822 050 11002	1K 1% 0,4W
3455	4822 051 30102	1K 5% 0,062W
3456	4822 050 11002	1K 1% 0,4W
3457	4822 051 30103	10K 5% 0,062W
3458	4822 051 30102	1K 5% 0,062W
3459	4822 116 83872	220R 5% 0,5W
3460	4822 051 30471	470R 5% 0,062W
3461	4822 116 52283	4,7K 5% 0,5W
3462	4822 051 30472	4,7K 5% 0,062W
3463	4822 116 52283	4,7K 5% 0,5W
3464	4822 051 30472	4,7K 5% 0,062W
3465	4822 116 52283	4,7K 5% 0,5W
3466	4822 051 30472	4,7K 5% 0,062W
3467	4822 116 52256	2,2K 5% 0,5W
3468	4822 051 30222	2,2K 5% 0,062W
3469	4822 116 83883	470R 5% 0,5W
3470	4822 051 30272	2,7K 5% 0,062W
3471	4822 050 23303	33K 1% 0,6W
3472	4822 051 30474	470K 5% 0,062W
3473	4822 051 30472	4,7K 5% 0,062W
3474	4822 050 11002	1K 1% 0,4W

RESISTORS

3475	4822 051 30331	330R 5% 0,062W
3476	4822 116 83883	470R 5% 0,5W
3477	4822 051 30471	470R 5% 0,062W
3478	4822 116 83883	470R 5% 0,5W
3479	4822 051 30471	470R 5% 0,062W
3480	4822 050 11002	1K 1% 0,4W
3481	4822 051 30471	470R 5% 0,062W
3482	4822 050 11002	1K 1% 0,4W
3483	4822 051 30153	15K 5% 0,062W
3484	4822 051 30103	10K 5% 0,062W
3485	4822 116 52256	2,2K 5% 0,5W
3486	4822 051 30101	100R 5% 0,062W
3487	4822 116 52256	2,2K 5% 0,5W
3488	4822 051 30101	100R 5% 0,062W
3489	4822 050 11002	1K 1% 0,4W
3490	4822 051 30102	1K 5% 0,062W
3491	4822 050 11002	1K 1% 0,4W
3492	4822 051 30102	1K 5% 0,062W
3493	4822 050 11002	1K 1% 0,4W
3494	4822 051 30102	1K 5% 0,062W
3495	4822 051 30563	56K 5% 0,062W
3496	4822 051 30563	56K 5% 0,062W
3497	4822 051 30103	10K 5% 0,062W
3498	4822 051 30103	10K 5% 0,062W
3499	4822 051 30223	22K 5% 0,062W
4401	4822 051 20008	0R Jumper 0805
4410	4822 051 20008	0R Jumper 0805
4411	4822 051 20008	0R Jumper 0805
4412	4822 051 20008	0R Jumper 0805
4413	4822 051 20008	0R Jumper 0805
4414	4822 051 20008	0R Jumper 0805
4415	4822 051 20008	0R Jumper 0805
4416	4822 051 20008	0R Jumper 0805
4417	4822 051 20008	0R Jumper 0805
4418	4822 051 20008	0R Jumper 0805
4419	4822 051 20008	0R Jumper 0805

COILS & FILTERS

5400	3198 018 11580	1,5µH 5%
5401	3198 018 11580	1,5µH 5%
5402	2422 540 98518	Cer. Res. 8MHz
5403	2422 543 01069	Cer. Res. 32.768KHz
5404	4822 242 11033	Quartz 4,332MHz

ELECTRICAL PARTSLIST - FRONT BOARD

DIODES

6400	4822 130 30621	1N4148
6401	4822 130 30621	1N4148

TRANSISTORS & IC

7400	3140 110 51300	TMP87CP23F MC-100
7402	4822 130 60511	BC847B
7403	4822 130 60511	BC847B
7404	9322 155 22667	IR receiver TSOP2836
7405	9322 140 83682	M24C01-BN6
7406	4822 209 31981	SAA6579T

Note: Only these parts mentioned in the list are normal service parts.

ELECTRICAL PARTSLIST - TUNER BOARD ECO6 (Cenelec)

MISCELLANEOUS

1102	4822 267 10283	FM Ant. Socket
1103	4822 265 31184	AM Ant. Socket
1110	2422 542 90071	FM Frontend FE450-G01

CAPACITORS

2102	4822 126 14305	100nF 10% X7R 16V
2106	2020 800 00204	CTRM 4,2-20 pF N750
2107	4822 121 51319	1µF 10% 63V
2108	4822 122 31765	100pF 2% NP0 63V
2109	4822 122 33741	10pF 10% NP0 50V
2120	4822 122 33761	22pF 5% NP0 50V
2122	5322 126 11579	3,3nF 10% X7R 63V
2123	2238 861 18391	390pF 10% NP0 50V
2125	2238 861 18561	560pF 10% NP0 50V
2127	4822 126 13879	220nF +80-20% 16V
2128	4822 124 40248	10µF 20% 63V
2129	4822 124 41584	100µF 20% 10V
2130	4822 126 14494	22nF 10% X7R 25V
2131	3198 017 44740	470nF +80-20% 10V
2132	3198 017 44740	470nF +80-20% 10V
2133	4822 124 21913	1µF 20% 63V
2134	2020 552 94387	18nF 10% X7R 50V
2134	3198 017 31530	15nF 10% X7R 50V
2135	3198 017 31530	15nF 10% X7R 50V
2135	4822 122 33893	18nF10% X7R 63V
2136	4822 126 13879	220nF +80-20% 16V
2137	4822 126 13879	220nF +80-20% 16V
2138	4822 124 22652	2,2µF 20% 50V
2139	4822 122 33752	15pF 5% NP0 50V
2140	4822 126 14226	82pF 5% NP0 50V
2141	4822 126 14305	100nF 10% X7R 16V
2143	4822 126 13879	220nF +80-20% 16V
2144	4822 124 21913	1µF 20% 63V
2145	4822 126 13883	220pF 5% 50V
2146	4822 122 33575	220pF 5% NP0 63V
2147	4822 122 33575	220pF 5% NP0 63V
2148	4822 122 33127	2,2nF10% X7R 63V
2149	4822 126 11671	33pF 1% 50V
2150	4822 126 13838	100nF +80-20% 50V
2159	4822 126 11671	33pF 1% 50V
2162	4822 124 81151	22µF 20% 50V
2163	4822 126 14305	100nF 10% X7R 16V
2164	3198 017 44740	470nF +80-20% 10V
2165	4822 126 14305	100nF 10% X7R 16V
2166	5322 122 31647	1nF10% X7R 63V
2167	4822 126 11663	12pF 1% 50V
2169	4822 126 14238	2,2nF 20% X7R 50V
2180	5322 126 11583	10nF 10% X7R 50V
2191	4822 124 41584	100µF 20% 10V

RESISTORS

3105	4822 051 30221	220R 5% 0,1W
3108	4822 051 30222	2K2 5% 0,1W
3109	4822 051 30472	4K7 5% 0,1W
3123	4822 051 30472	4K7 5% 0,1W
3125	4822 051 30103	10K 5% 0,1W
3128	4822 051 30222	2K2 5% 0,1W
3130	4822 117 12968	820R 5% 0,6W
3131	4822 117 12968	820R 5% 0,6W
3132	4822 051 30479	47R 5% 0,1W
3134	4822 051 30223	22K 5% 0,1W
3135	4822 051 30102	1K 5% 0,1W
3137	4822 051 30223	22K 5% 0,1W
3141	4822 051 30563	56K 5% 0,1W
3142	4822 100 12159	100K 30%
3143	4822 051 30223	22K 5% 0,1W
3144	4822 051 30102	1K 5% 0,1W
3145	4822 051 30222	2K2 5% 0,1W
3146	4822 117 12139	22R 5% 0,1W
3150	4822 051 30103	10K 5% 0,1W
3151	4822 051 30683	68K 5% 0,1W
3152	4822 051 30471	470R 5% 0,1W
3153	4822 051 30471	470R 5% 0,1W
3154	4822 051 30331	330R 5% 0,1W
3155	4822 051 30151	150R 5% 0,1W
3158	4822 051 30471	470R 5% 0,1W
3159	4822 051 30471	470R 5% 0,1W
3160	4822 051 30471	470R 5% 0,1W
3161	4822 051 30223	22K 5% 0,1W
3167	4822 051 20121	120R 5% 0,1W
3168	4822 051 30121	120R 5% 0,1W
3169	4822 051 30154	150K 5% 0,1W
3171	4822 117 12925	47K 1% 0,1W
3172	4822 051 30562	5K6 5% 0,1W
3176	4822 051 30333	33K 5% 0,1W
3180	4822 051 30103	10K 5% 0,1W
3190	4822 051 30121	120R 5% 0,1W
3191	4822 051 30121	120R 5% 0,1W
3192	4822 051 30331	330R 5% 0,1W
3193	4822 051 30331	330R 5% 0,1W
3194	4822 051 30222	2K2 5% 0,1W
3195	4822 051 30101	100R 5% 0,1W
4105	4822 051 20008	0R Jumper 0805
4106	4822 051 30008	0R Jumper 0603
4107	4822 051 20008	0R Jumper 0805

ELECTRICAL PARTSLIST - TUNER BOARD ECO6 (Cenelec)

COILS AND FILTERS

5102	4822 157 71634	MW Aerial Coil
5103	2422 549 44107	LW Aerial Coil
5109	4822 157 71639	FM IF SFE10,7MJA10H-A
5110	4822 242 70665	FM IF SFE10,7MS3-A
5111	2422 549 44023	AM IF 7PY 450KHZ
5112	4822 157 70302	AM IF F7MCS-12216N
5114	4822 157 70302	AM IF F7MCS-12216N
5115	4822 157 71636	Birdie Filter Coil
5118	2422 535 95881	Inductor 0,1µH 5%
5119	4822 157 11443	FM Disc 2,4µH 10,7MHz
5121	4822 242 10261	Crystal 75KHz T6252F00
5122	2422 549 44108	MW Osc Coil
5123	2422 549 44108	LW Osc Coil

DIODES

6105	4822 130 83075	HN1V02H-B
6106	4822 130 83757	BAS216
6107	9340 386 90115	BZX284-C11
6120	4822 130 83757	BAS216

TRANSISTORS & IC

7101	9351 772 20557	TEA5762H/V1
7103	5322 130 42756	BC857C
7104	4822 130 40855	BC337
7105	4822 130 40855	BC337
7109	4822 130 60373	BC856B
7110	4822 130 60373	BC856B
7112	4822 130 44503	BC547C
7122	5322 130 42755	BC847C
7124	5322 130 42755	BC847C

ELECTRICAL PARTSLIST - TUNER BOARD ECO6 (Non cenelec)

MISCELLANEOUS

1102	4822 267 10283	FM Ant. Socket
1103	4822 265 31184	AM Ant. Socket
1120	4822 265 11515	FFC Socket 8P

CAPACITORS

2101	4822 122 33777	47pF 5% NP0 63V
2102	4822 126 14305	100nF 10% X7R 16V
2103	5322 126 11578	1nF 10% X7R 50V
2104	4822 122 31765	100pF 2% NP0 63V
2106	2020 800 00191	CTRM 3P-11P N450
2107	4822 121 51319	1µF 10% 63V
2120	4822 126 14507	18pF 5% 50V
2124	4822 126 14494	22nF 10% X7R 25V
2125	2238 861 18561	560pF 1% NP0 50V
2126	4822 126 14241	330pF 10% NP0 50V
2127	4822 126 13879	220nF +80-20% 16V
2128	4822 124 40248	10µF 20% 63V
2129	4822 124 41584	100µF 20% 10V
2130	4822 126 14494	22nF 10% X7R 25V
2131	3198 017 44740	470nF +80-20% 10V
2132	3198 017 44740	470nF +80-20% 10V
2133	4822 124 21913	1µF 20% 63V
2134	3198 017 31530	15nF 20% X7R 50V
2135	3198 017 31530	15nF 20% X7R 50V
2136	4822 126 13879	220nF +80-20% 16V
2137	4822 126 13879	220nF +80-20% 16V
2138	4822 124 22652	2,2µF 20% 50V
2139	4822 122 33752	15pF 5% NP0 50V
2140	4822 126 14226	82pF 5% NP0 50V
2141	4822 126 14305	100nF 10% X7R 16V
2143	4822 126 13879	220nF +80-20% 16V
2144	4822 124 21913	1µF 20% 63V
2145	4822 126 13883	220pF 5% 50V
2146	4822 126 13883	220pF 5% 50V
2147	4822 126 13883	220pF 5% 50V
2148	4822 126 14238	2,2nF 10% X7R 50V
2150	4822 126 14585	100nF 10% X7R 50V
2152	4822 126 14549	33nF 10% 16V
2153	4822 122 33752	15pF 5% NP0 50V
2155	2020 800 00191	CTRM 3P-11P N450
2159	4822 126 11671	33pF 1% 50V
2164	3198 017 44740	470nF +80-20% 10V
2165	4822 126 14305	100nF 10% X7R 16V
2166	5322 126 11578	1nF 10% X7R 50V
2167	4822 126 11663	12pF 1% 50V

RESISTORS

3101	4822 051 30333	33K 5% 0,1W
3102	4822 117 13632	100K 1% 0,62W
3103	4822 117 12902	8K2 1% 0,1W
3104	4822 117 13577	330R 1% 0,25W
3105	4822 051 30221	220R 5% 0,1W
3132	4822 051 30479	47R 5% 0,1W
3134	4822 051 30223	22K 5% 0,1W
3141	4822 051 30563	56K 5% 0,1W
3142	4822 100 12159	100K 30% Var.
3145	4822 051 30222	2K2 5% 0,1W
3146	4822 117 12139	22R 5% 0,1W
3152	4822 051 30471	470R 5% 0,1W
3153	4822 051 30471	470R 5% 0,1W
3154	4822 051 30331	330R 5% 0,1W
3155	4822 051 30221	220R 5% 0,1W
3156	4822 117 13632	100K 1% 0,62W
3158	4822 051 30471	470R 5% 0,1W
3159	4822 051 30471	470R 5% 0,1W
3160	4822 051 30471	470R 5% 0,1W
3161	4822 051 20223	22K 5% 0,1W
3167	4822 051 20121	120R 5% 0,1W
3168	4822 051 30121	120R 5% 0,1W
3169	4822 051 30154	150K 5% 0,1W
3170	4822 117 13632	100K 1% 0,62W
3172	4822 051 30562	5K6 5% 0,1W
3181	4822 051 30102	1K 5% 0,1W
4103	4822 051 30008	0R Jumper 0603
4106	4822 051 20008	0R Jumper 0805
4107	4822 051 30008	0R Jumper 0603
4108	4822 051 30008	0R Jumper 0603

COILS AND FILTERS

5102	4822 157 71634	MW Aerial Coil
5109	4822 242 70665	FM IF SFE10,7MS3-A
5110	4822 242 70665	FM IF SFE10,7MS3-A
5111	2422 549 44023	AM IF 7PY 450KHZ
5112	4822 157 70302	AM IF F7MCS-12216N
5114	4822 157 70302	AM IF F7MCS-12216N
5119	4822 157 11443	FM Disr 2,4µH 10,7MHz
5121	4822 242 10261	Crystal 75KHz T6252F00
5123	2422 549 44108	MW Osc Coil
5130	4822 157 11843	FM RF Coil
5131	4822 157 11843	FM RF Coil

ELECTRICAL PARTSLIST - TUNER BOARD ECO6 (Non cenelec)

DIODES

6103	5322 130 34337	BAV99
6105	4822 130 83075	HN1V02H-B
6106	4822 130 83757	BAS216
6107	9340 386 90115	BZX284-C11
6130	4822 130 82833	1SV228
6131	4822 130 82833	1SV228

TRANSISTORS & IC

7101	9351 740 80557	TEA5757H/V1
7102	4822 130 42131	BF550
7111	5322 130 42755	BC847C
7112	4822 130 40959	BC547B

ELECTRICAL PARTSLIST - ECO-MTF BOARD

MISCELLANEOUS

1707	4822 277 11504	Push Switch 6P2T
1725	4822 265 11207	Connector 6P

- CAPACITORS -

2700	4822 124 21913	1µF 20% 63V
2701	4822 124 21913	1µF 20% 63V
2703	4822 124 81151	22µF 20% 50V
2704	4822 124 81151	22µF 20% 50V
2706	4822 124 40433	47µF 20% 25V
2707	4822 124 40196	220µF 20% 16V
2708	4822 124 40433	47µF 20% 25V
2709	4822 124 40433	47µF 20% 25V
2710	4822 124 41584	100µF 20% 10V
2711	4822 124 81151	22µF 20% 50V
2712	4822 126 12878	1,5nF 10% 16V
2714	4822 126 12878	1,5nF 10% 16V
2715	4822 121 51387	10nF 20% 16V
2716	4822 126 12882	100nF +80-20% 50V
2719	4822 126 13098	5,6nF 20% 16V
2721	4822 126 12878	1,5nF 10% 16V
2722	4822 121 51387	10nF 20% 16V
2723	4822 126 12882	100nF +80-20% 50V
2726	4822 126 13098	5,6nF 20% 16V
2727	4822 126 12878	1,5nF 10% 16V
2728	4822 126 11714	4,7nF 20% 16V
2729	4822 126 11714	4,7nF 20% 16V
2730	2020 300 90561	1,2nF 10% 50V
2732	4822 122 10577	3,3nF 10% 16V
2733	4822 121 51387	10nF 20% 16V
2738	4822 121 51387	10nF 20% 16V
2739	4822 121 51387	10nF 20% 16V
2750	4822 126 13098	5,6nF 20% 16V
2751	4822 126 13098	5,6nF 20% 16V

RESISTORS

3701	4822 116 52175	100R 5% 0,5W
3703	4822 116 83868	150R 5% 0,5W
3704	4822 116 83872	220R 5% 0,5W
3706	4822 116 52272	330K 5% 0,5W
3707	4822 116 52285	470K 5% 0,5W
3710	4822 116 52264	27K 5% 0,5W
3712	4822 116 52238	12K 5% 0,5W
3713	4822 116 83868	150R 5% 0,5W
3714	4822 116 83872	220R 5% 0,5W
3716	4822 116 52272	330K 5% 0,5W

RESISTORS

3719	4822 116 52264	27K 5% 0,5W
3720	4822 116 52238	12K 5% 0,5W
3722	4822 116 52257	22K 5% 0,5W
3723	4822 116 52257	22K 5% 0,5W
3724	4822 050 21003	10K 1% 0,6W
3726	4822 116 52256	2K2 5% 0,5W
3727	4822 116 52256	2K2 5% 0,5W
3728	4822 050 21003	10K 1% 0,6W
3730	4822 116 83868	150R 5% 0,5W
3731	4822 116 52291	56K 5% 0,5W
3732	4822 116 52176	10R 5% 0,5W
3732	4822 116 52182	15R 5% 0,5W
3733	4822 111 30893	4M7 5% 0,2W
3734	4822 050 21003	10K 1% 0,6W
3736	4822 116 52234	100K 5% 0,5W
3737	4822 050 21003	10K 1% 0,6W
3738	4822 116 52234	100K 5% 0,5W
3739	4822 050 21003	10K 1% 0,6W
3740	4822 116 52234	100K 5% 0,5W
3743	4822 116 83883	470R 5% 0,5W
3744	4822 116 83883	470R 5% 0,5W
3747	4822 116 83868	150R 5% 0,5W
3748	4822 116 83883	470R 5% 0,5W
3749	4822 116 83883	470R 5% 0,5W
3761	4822 116 52289	5K6 5% 0,5W
3762	4822 116 52289	5K6 5% 0,5W

COILS & FILTERS

5701	4822 157 10371	Bias Osc Coil 100kHz

DIODES

6704	4822 130 30621	1N4148

TRANSISTORS & IC

7701	4822 130 40959	BC547B
7702	4822 130 40981	BC337-25
7703	4822 130 40981	BC337-25
7704	4822 130 40981	BC337-25
7705	4822 209 17498	AN7323

Note: Only these parts mentioned in the list are normal service parts.

ELECTRICAL PARTSLIST - CD99/DA11 BOARD

MISCELLANEOUS

1800	4822 265 10925	FFC Socket 15P
1823	4822 265 11207	FFC Socket 6P
1824	4822 265 11207	FFC Socket 6P

CAPACITORS

2801	4822 124 41751	47µF 20% 50V
2802	4822 124 41751	47µF 20% 50V
2803	4822 126 14226	82pF 5% NP0 50V
2804	4822 126 14226	82pF 5% NP0 50V
2805	4822 126 14226	82pF 5% NP0 50V
2806	4822 126 13695	82pF 1% NP0 63V
2807	4822 126 11669	27pF 5% 50V
2808	5322 122 33538	150pF 2% NP0 63V
2809	4822 126 11669	27pF 5% 50V
2810	4822 126 13692	47pF 1% NP0 63V
2811	4822 126 11671	33pF 5% 50V
2812	4822 122 33741	10pF 10% NP0 50V
2813	4822 126 14238	2,2nF X7R 50V
2814	3198 024 44730	47nF Y5V 50V
2815	4822 122 33777	47pF 5% NP0 63V
2816	5322 122 32654	22nF 10% 63V
2817	4822 124 40769	4,7µF 20% 100V
2818	3198 024 44730	47nF Y5V 50V
2821	4822 126 14305	100nF 10% X7R 16V
2822	4822 126 13344	1,5nF 5% 63V
2823	4822 124 42383	220µF 20% 4V
2824	4822 126 13751	47nF 10% X7R 63V
2825	4822 126 13344	1,5nF 5% 63V
2826	3198 024 44730	47nF Y5V 50V
2827	5322 126 11578	1nF 10% X7R 50V
2828	4822 122 33777	47pF 5% NP0 63V
2829	3198 024 44730	47nF Y5V 50V
2830	3198 017 41050	1µF Y5V 10V
2831	4822 126 14043	1µF +80-20% 16V
2832	4822 122 33753	150pF 5% NP0 50V
2833	4822 126 13881	470pF 5% 50V
2834	4822 126 14506	270pF 5% 50V
2835	4822 126 13881	470pF 5% 50V
2836	4822 124 41751	47µF 20% 50V
2837	3198 024 44730	47nF Y5V 50V
2838	3198 017 42230	22nF Y5V 50V
2839	4822 126 14305	100nF 10% X7R 16V
2840	4822 124 41751	47µF 20% 50V
2841	4822 126 13751	47nF 10% X7R 63V
2842	4822 124 21913	1µF 20% 63V
2843	4822 122 31765	100pF 2% NP0 63V
2844	4822 126 13883	220pF 5% 50V
2845	4822 126 13883	220pF 5% 50V
2846	4822 124 40248	10µF 20% 63V
2848	4822 122 31765	100pF 2% NP0 63V

CAPACITORS

2849	4822 126 13883	220pF 5% 50V
2850	4822 126 13883	220pF 5% 50V
2851	4822 124 40248	10µF 20% 63V
2853	5322 126 11583	10nF 10% X7R 50V
2854	4822 124 11912	220µF 20% 6,3V
2855	4822 124 11912	220µF 20% 6,3V
2857	4822 124 12362	47µF 20% 4V
2860	5322 116 80853	560pF 5% 63V
2861	4822 126 13344	1,5nF 5% 63V
2862	4822 126 14508	180pF 5% 50V
2863	4822 126 14508	180pF 5% 50V
2864	4822 126 14508	180pF 5% 50V
2865	4822 126 14508	180pF 5% 50V
2869	3198 024 44730	47nF Y5V 50V
2870	4822 126 13883	220pF 5% 50V
2871	4822 126 13883	220pF 5% 50V
2872	4822 126 13883	220pF 5% 50V
2873	4822 126 13883	220pF 5% 50V
2874	4822 126 13883	220pF 5% 50V
2875	4822 126 13883	220pF 5% 50V

RESISTORS

3728	4822 051 20479	47R 5% 0,1W
3745	4822 051 30338	3R3 5% 0,1W
3757	4822 051 20223	22K 5% 0,1W
3788	4822 051 20472	4K7 5% 0,1W
3800	4822 117 13608	4R7 5% 0,1W
3801	4822 051 30154	150K 5% 0,1W
3802	4822 051 30102	1K 5% 0,1W
3803	4822 051 30273	27K 5% 0,1W
3804	4822 051 30472	4K7 5% 0,1W
3805	4822 051 30273	27K 5% 0,1W
3806	4822 117 10361	680R 1% 0,1W
3807	4822 051 30152	1K5 5% 0,1W
3808	4822 051 30339	33R 5% 0,1W
3809	4822 051 30339	33R 5% 0,1W
3810	4822 052 10478	4R7 5% 0,33W
3811	4822 051 30102	1K 5% 0,1W
3812	4822 051 30474	470K 5% 0,1W
3813	4822 051 30683	68K 5% 0,1W
3814	4822 051 30332	3K3 5% 0,1W
3815	4822 051 30472	4K7 5% 0,1W
3816	4822 051 30153	15K 5% 0,1W
3817	4822 117 10834	47K 1% 0,1W
3818	4822 051 20562	5K6 5% 0,1W
3819	4822 051 30153	15K 5% 0,1W
3820	4822 051 30183	18K 5% 0,1W

ELECTRICAL PARTSLIST - CD99/DA11 BOARD

RESISTORS

3821	4822 051 20332	3K3 5% 0,1W
3822	4822 051 30332	3K3 5% 0,1W
3823	4822 051 20332	3K3 5% 0,1W
3824	4822 051 30102	1K 5% 0,1W
3825	4822 051 30223	22K 5% 0,1W
3826	4822 051 30273	27K 5% 0,1W
3827	4822 051 20339	33R 5% 0,1W
3828	4822 051 20479	47R 5% 0,1W
3829	4822 051 30101	100R 5% 0,1W
3830	4822 051 30472	4K7 5% 0,1W
3835	4822 051 30223	22K 5% 0,1W
3836	4822 117 10833	10K 1% 0,1W
3837	4822 051 20471	470R 5% 0,1W
3838	4822 051 20471	470R 5% 0,1W
3839	4822 051 30471	470R 5% 0,1W
3840	4822 051 30471	470R 5% 0,1W
3841	4822 051 30472	4K7 5% 0,1W
3842	4822 051 10102	1K 2% 0,25W
3843	4822 051 30102	1K 5% 0,1W
3844	4822 051 30101	100R 5% 0,1W
3845	2120 108 92668	3R3 5% 0,1W
3846	4822 051 20223	22K 5% 0,1W
3847	4822 117 12864	82K 5% 0,6W
3848	4822 117 10834	47K 1% 0,1W
3849	4822 051 30563	56K 5% 0,1W
3850	4822 117 12902	8K2 1% 0,1W
3851	4822 051 30563	56K 5% 0,1W
3852	4822 117 10834	47K 1% 0,1W
3853	4822 051 30153	15K 5% 0,1W
3854	4822 117 12902	8K2 1% 0,1W
3855	4822 116 40227	4R6 25% 12V
3856	4822 051 20683	68K 5% 0,1W
3857	4822 051 20154	150K 5% 0,1W
3858	4822 051 30392	3K9 5% 0,1W
3859	4822 117 10834	47K 1% 0,1W
3860	4822 051 30102	1K 5% 0,1W
3861	4822 117 10834	47K 1% 0,1W
3862	4822 051 10102	1K 2% 0,25W
3863	4822 052 10338	3R3 5% 0,33W
3864	4822 117 10833	10K 1% 0,1W
3865	4822 051 30102	1K 5% 0,1W
3867	4822 051 20223	22K 5% 0,1W
3868	4822 051 30103	10K 5% 0,1W
3869	4822 051 30103	10K 5% 0,1W
3871	4822 051 30471	470R 5% 0,1W
3872	4822 117 12925	47K 1% 0,1W
3873	4822 051 30223	22K 5% 0,1W
3874	4822 051 30223	22K 5% 0,1W
3875	4822 051 30103	10K 5% 0,1W
3876	4822 051 30103	10K 5% 0,1W

RESISTORS

3878	4822 051 30471	470R 5% 0,1W
3879	4822 117 12925	47K 1% 0,1W
3880	4822 051 20339	33R 5% 0,1W
3881	4822 051 30151	150R 5% 0,1W
3882	4822 117 11373	100R 1% 0.1W
3883	4822 051 30102	1K 5% 0,1W
3884	4822 051 30102	1K 5% 0,1W
3886	4822 117 10833	10K 1% 0,1W
3887	4822 117 10833	10K 1% 0,1W
3888	4822 051 20472	4K7 5% 0,1W
3889	4822 051 30102	1K 5% 0,1W
3890	4822 117 10837	100K 1% 0,1W
3891	4822 117 10837	100K 1% 0,1W
3892	4822 117 13632	100K 1% 0,62W
3893	4822 117 13632	100K 1% 0,62W
3894	4822 117 10833	10K 1% 0,1W
3895	4822 117 10833	10K 1% 0,1W
3896	4822 117 10833	10K 1% 0,1W
3897	4822 117 10833	10K 1% 0,1W
3898	4822 117 10833	10K 1% 0,1W
3899	4822 117 10833	10K 1% 0,1W
3900	4822 051 30223	22K 5% 0,1W
4801	4822 051 30008	0R Jumper 0603
4802	4822 051 20008	0R Jumper 0805
4807	4822 051 20008	0R Jumper 0805
4808	4822 051 30008	0R Jumper 0603
4809	4822 051 20008	0R Jumper 0805
4810	4822 051 20008	0R Jumper 0805
4812	4822 051 20008	0R Jumper 0805
4813	4822 051 20008	0R Jumper 0805
4814	4822 051 20008	0R Jumper 0805
4815	4822 051 20008	0R Jumper 0805
4823	4822 051 20008	0R Jumper 0805
4824	4822 051 20008	0R Jumper 0805
4828	4822 051 20008	0R Jumper 0805
4831	4822 051 20008	0R Jumper 0805
4832	4822 051 20008	0R Jumper 0805
4838	4822 051 20008	0R Jumper 0805
4845	4822 051 20008	0R Jumper 0805
4847	4822 051 20008	0R Jumper 0805
4848	4822 051 20008	0R Jumper 0805
4850	4822 051 20008	0R Jumper 0805
4853	4822 051 20008	0R Jumper 0805
4856	4822 051 30008	0R Jumper 0603
4857	4822 051 20008	0R Jumper 0805
4859	4822 051 20008	0R Jumper 0805
4863	4822 051 20008	0R Jumper 0805
4865	4822 051 20008	0R Jumper 0805
4866	4822 051 20008	0R Jumper 0805
4872	4822 051 20008	0R Jumper 0805

ELECTRICAL PARTSLIST - CD99/DA11 BOARD

RESISTORS

4877	4822 051 30008	0R Jumper 0603
4881	4822 051 20008	0R Jumper 0805
4884	4822 051 20008	0R Jumper 0805
4885	4822 051 30008	0R Jumper 0603
4886	4822 051 20008	0R Jumper 0805
4888	4822 051 20008	0R Jumper 0805
4889	4822 051 20008	0R Jumper 0805

COILS AND FILTERS

1810	4822 242 73557	CST8,46MTW-TF01
5803	4822 157 11231	1µH 5%

DIODES

6877	9322 129 34685	BZM55-C3V9

TRANSISTORS & IC

7800	9352 690 17557	SAA7325H/T/M2B/WD
7802	5322 209 11517	PC74HCU04T
7803	5322 130 60123	BC807-40
7804	5322 209 82941	LM358D
7807	5322 130 42755	BC847C
7808	4822 209 32852	TDA7073A/N2
7809	4822 209 32852	TDA7073A/N2
7810	4822 209 33165	TDA1308T/N1
7875	4822 130 60511	BC847B

ELECTRICAL PARTSLIST - COMBI BOARD

MISCELLANEOUS

1330	2422 026 05281	Headphone Socket
1331	4822 267 31176	Speaker Terminal
1550	4822 265 20553	Aux In Socket
1552	4822 267 10731	FFC Socket 6P
1554	4822 267 10731	FFC Socket 6P
1555	4822 265 11515	FFC Socket 8P
1556	2422 025 14526	FFC Socket 16P

CAPACITORS

2250	4822 124 11878	4700µF 20% 16V.
2251	5322 121 42386	100nF 5% 63V (mylar)
2252	5322 121 42386	100nF 5% 63V (mylar)
2253	5322 121 42386	100nF 5% 63V (mylar)
2254	5322 121 42386	100nF 5% 63V (mylar)
2255	4822 124 81039	3300µF 20% 25V
2258	4822 124 40769	4,7µF 20% 100V
2259	4822 124 40769	4,7µF 20% 100V
2260	3198 017 34730	47nF 20% 16V
2261	4822 124 22652	2,2µF 20% 50V
2262	3198 016 31020	1nF 10% 25V
2263	4822 124 40433	47µF 20% 25V
2264	4822 124 40433	47µF 20% 25V
2330	4822 124 40769	4,7µF 20% 100V
2331	2238 786 19852	150nF +80-20% 16V
2332	2238 786 19852	150nF +80-20% 16V
2337	4822 121 42408	220nF 5% 63V
2338	4822 121 42408	220nF 5% 63V
2339	4822 121 42408	220nF 5% 63V
2340	4822 121 42408	220nF 5% 63V
2341	4822 124 40433	47µF 20% 25V
2342	4822 124 40433	47µF 20% 25V
2343	4822 122 33197	1nF 10% 50V
2344	4822 122 33197	1nF 10% 50V
2345	4822 126 14494	22nF 10% 25V
2346	4822 126 14494	22nF 10% 25V
2347	4822 124 40433	47µF 20% 25V
2348	4822 124 40433	47µF 20% 25V
2349	4822 124 40207	100µF 20% 25V
2350	4822 124 40207	100µF 20% 25V
2351	4822 124 40769	4,7µF 20% 100V
2352	4822 124 40433	47µF 20% 25V
2353	5322 126 11583	10nF 10% 50V
2354	5322 126 11583	10nF 10% 50V
2355	4822 124 40207	100µF 20% 25V
2500	4822 124 41584	100µF 20% 10V
2501	4822 124 40196	220µF 20% 16V
2502	4822 124 40248	10µF 20% 63V
2503	4822 126 14494	22nF 10% 25V
2505	4822 122 31765	100pF 2% 63V

CAPACITORS

2506	4822 122 31765	100pF 2% 63V
2507	4822 122 31765	100pF 2% 63V
2508	4822 122 31765	100pF 2% 63V
2509	4822 122 33761	22pF 5% 50V
2510	4822 122 33761	22pF 5% 50V
2511	4822 126 13879	220nF +80-20% 16V
2512	4822 126 13879	220nF +80-20% 16V
2513	4822 122 33777	47pF 5% 63V
2514	4822 122 33777	47pF 5% 63V
2515	5322 126 11583	10nF 10% 50V
2516	5322 126 11583	10nF 10% 50V
2517	4822 126 14247	1,5nF 10% 50V
2518	4822 126 14247	1,5nF 10% 50V
2519	4822 126 13883	220pF 5% 50V
2520	4822 126 13883	220pF 5% 50V
2521	4822 126 14247	1,5nF 10% 50V
2522	4822 126 14247	1,5nF 10% 50V
2523	3198 016 36810	680pF 10% 25V
2524	3198 016 36810	680pF 10% 25V
2525	4822 122 33777	47pF 5% 63V
2526	4822 122 33777	47pF 5% 63V
2527	5322 126 11583	10nF 10% 50V
2528	5322 126 11583	10nF 10% 50V
2529	4822 126 14305	100nF 10% 16V
2530	4822 126 14305	100nF 10% 16V
2531	4822 126 14305	100nF 10% 16V
2532	4822 126 14305	100nF 10% 16V
2533	3198 017 34730	47nF 20% 16V
2534	3198 017 34730	47nF 20% 16V
2535	4822 126 14305	100nF 10% 16V
2550	4822 126 11585	22nF+80-20% 25V
2551	4822 126 14238	2,2nF 10% 50V
2552	4822 126 14238	2,2nF 10% 50V
2553	4822 126 14494	22nF 10% 25V
2554	4822 124 40196	220µF 20% 16V
2555	4822 124 22652	2,2µF 20% 50V
2557	3198 017 44740	470nF 20% 10V
2558	4822 126 13883	220pF 5% 50V
2559	4822 126 13883	220pF 5% 50V
2560	4822 126 13883	220pF 5% 50V
2561	4822 124 81151	22µF 20% 50V
2563	4822 124 41407	0,47µF 20% 63V
2564	4822 124 41407	0,47µF 20% 63V
2565	4822 122 31765	100pF 2% 63V
2566	4822 122 31765	100pF 2% 63V
2567	4822 124 22652	2,2µF 20% 50V
2568	4822 124 22652	2,2µF 20% 50V
2569	4822 124 21913	1µF 20% 63V
2570	4822 124 21913	1µF 20% 63V
2571	3198 017 44740	470nF 20% 10V

ELECTRICAL PARTSLIST - COMBI BOARD

CAPACITORS

2573	4822 126 14305	100nF 10% 16V

RESISTORS

3252	4822 051 20472	4,7K 5% 0,1W
3253	4822 051 20472	4,7K 5% 0,1W
3254	4822 117 11449	2,2K 5% 0,1W
3255	4822 050 11002	1K 1% 0,4W
3256	4822 050 11002	1K 1% 0,4W
3257	4822 050 11002	1K 1% 0,4W
3258	4822 116 83884	47K 5% 0,5W
3259	4822 051 30331	330R 5% 0,062W
3260	4822 117 12891	220K 1% ERJ3E
3261	4822 117 12864	82K 5% 0,6W
3262	4822 051 10102	1K 2% 0,25W
3263	4822 051 30102	1K 5% 0,062W
3266	4822 117 12925	47K 1% 0.063W 0603
3267	4822 117 11449	2,2K 5% 0,1W
3268	4822 117 11449	2,2K 5% 0,1W
3269	4822 051 30223	22K 5% 0,062W
3271	4822 050 24708	4,7R 1% 0,6W
3272	4822 050 24708	4,7R 1% 0,6W
3273	4822 050 24708	4,7R 1% 0,6W
3274	4822 051 20391	390R 5% 0,1W
3275	4822 116 83883	470R 5% 0,5W
3276	4822 051 30222	2,2K 5% 0,062W
3277	4822 051 30222	2,2K 5% 0,062W
3278	4822 117 12925	47K 1% 0.063W 0603
3279	4822 051 30102	1K 5% 0,062W
3280	4822 116 52257	22K 5% 0,5W
3281	4822 117 11449	2,2K 5% 0,1W
3330	4822 116 52269	3,3K 5% 0,5W
3331	4822 050 21003	10K 1% 0,6W
3332	4822 050 21003	10K 1% 0,6W
3333	4822 051 30682	6,8K 5% 0,062W
3334	4822 051 30682	6,8K 5% 0,062W
3335	4822 051 20228	2,2R 5% 0,1W
3336	4822 051 20228	2,2R 5% 0,1W
3337	4822 051 20228	2,2R 5% 0,1W
3338	4822 051 20228	2,2R 5% 0,1W
3339	4822 117 12521	68R 1% 0,1W
3340	4822 117 12521	68R 1% 0,1W
3341	4822 116 52283	4,7K 5% 0,5W
3342	4822 116 52283	4,7K 5% 0,5W
3343	4822 051 30103	10K 5% 0,062W
3344	4822 051 30103	10K 5% 0,062W
3345	4822 051 30103	10K 5% 0,062W
3346	4822 051 30103	10K 5% 0,062W
3347	4822 051 30223	22K 5% 0,062W

RESISTORS

3348	4822 051 30223	22K 5% 0,062W
3349	4822 051 30223	22K 5% 0,062W
3350	4822 117 12925	47K 1% 0.063W 0603
3351	4822 051 10102	1K 2% 0,25W
3352	4822 051 10102	1K 2% 0,25W
3353	4822 051 20479	47R 5% 0,1W
3358	4822 051 30472	4,7K 5% 0,062W
3359	4822 051 30682	6,8K 5% 0,062W
3360	4822 117 13632	100K 1% 0603 0.62W
3361	4822 117 11373	100R 1% RC12H
3362	4822 051 20182	1,8K 5% 0,1W
3363	4822 051 30103	10K 5% 0,062W
3364	4822 051 20391	390R 5% 0,1W
3365	4822 117 11504	270R 1% 0.1W
3500	4822 117 12968	820R 5% 0,62W
3501	4822 051 30471	470R 5% 0,062W
3502	4822 116 52256	2,2K 5% 0,5W
3503	4822 051 30471	470R 5% 0,062W
3505	4822 051 20333	33K 5% 0,1W
3506	4822 051 20333	33K 5% 0,1W
3507	4822 117 12971	15R 5% 0603 0,62W
3508	4822 117 12971	15R 5% 0603 0,62W
3509	4822 051 20333	33K 5% 0,1W
3510	4822 051 20333	33K 5% 0,1W
3511	4822 117 13632	100K 1% 0603 0.62W
3512	4822 117 13632	100K 1% 0603 0.62W
3513	4822 051 30153	15K 5% 0,062W
3514	4822 051 30153	15K 5% 0,062W
3515	4822 051 30333	33K 5% 0,062W
3516	4822 051 30333	33K 5% 0,062W
3517	4822 117 13632	100K 1% 0603 0.62W
3518	4822 117 13632	100K 1% 0603 0.62W
3519	4822 117 12891	220K 1% ERJ3E
3520	4822 117 12891	220K 1% ERJ3E
3521	4822 050 23303	33K 1% 0,6W
3522	4822 050 23303	33K 1% 0,6W
3523	4822 050 23303	33K 1% 0,6W
3524	4822 050 23303	33K 1% 0,6W
3525	4822 117 12891	220K 1% ERJ3E
3526	4822 117 12891	220K 1% ERJ3E
3527	4822 117 12891	220K 1% ERJ3E
3528	4822 117 12891	220K 1% ERJ3E
3529	4822 116 52264	27K 5% 0,5W
3530	4822 116 52264	27K 5% 0,5W
3531	4822 116 52264	27K 5% 0,5W
3532	4822 116 52264	27K 5% 0,5W
3533	4822 051 30333	33K 5% 0,062W
3534	4822 051 30333	33K 5% 0,062W
3535	4822 117 13632	100K 1% 0603 0.62W
3536	4822 117 13632	100K 1% 0603 0.62W

ELECTRICAL PARTSLIST - COMBI BOARD

RESISTORS

3537	4822 117 12891	220K 1% ERJ3E
3538	4822 117 12891	220K 1% ERJ3E
3539	4822 051 30223	22K 5% 0,062W
3540	4822 051 30223	22K 5% 0,062W
3541	4822 117 12891	220K 1% ERJ3E
3542	4822 117 12891	220K 1% ERJ3E
3543	4822 117 12864	82K 5% 0,6W
3544	4822 117 12864	82K 5% 0,6W
3545	4822 117 12902	8K2 1% 0.063W 0603
3546	4822 117 12902	8K2 1% 0.063W 0603
3547	4822 051 30154	150K 5% 0,062W
3548	4822 051 30154	150K 5% 0,062W
3551	4822 051 30393	39K 5% 0,062W
3552	4822 051 30393	39K 5% 0,062W
3553	4822 051 30682	6,8K 5% 0,062W
3554	4822 051 30682	6,8K 5% 0,062W
3555	4822 051 30223	22K 5% 0,062W
3556	4822 051 30223	22K 5% 0,062W
3557	4822 051 30333	33K 5% 0,062W
3558	4822 051 30333	33K 5% 0,062W
3559	4822 051 30332	3,3K 5% 0,062W
3560	4822 051 30332	3,3K 5% 0,062W
3561	4822 116 52244	15K 5% 0,5W
3562	4822 116 52244	15K 5% 0,5W
3563	4822 117 11373	100R 1% RC12H
3565	4822 051 20229	22R 5% 0,1W
3566	4822 051 20229	22R 5% 0,1W
3568	4822 051 10102	1K 2% 0,25W
3572	4822 051 30103	10K 5% 0,062W
3573	4822 050 11002	1K 1% 0,4W
3574	4822 117 12925	47K 1% 0.063W 0603
3575	4822 051 30153	15K 5% 0,062W
3576	4822 051 30153	15K 5% 0,062W
3577	4822 051 30471	470R 5% 0,062W
3578	4822 051 30471	470R 5% 0,062W
3579	4822 051 30154	150K 5% 0,062W
3580	4822 051 30154	150K 5% 0,062W
3581	4822 051 30272	2,7K 5% 0,062W
3582	4822 051 30272	2,7K 5% 0,062W
3583	4822 051 30472	4,7K 5% 0,062W
3584	4822 051 30472	4,7K 5% 0,062W
3585	4822 051 30222	2,2K 5% 0,062W
3586	4822 051 30222	2,2K 5% 0,062W
3587	4822 051 30392	3,9K 5% 0.063W
3588	4822 051 30392	3,9K 5% 0.063W
3589	4822 116 83872	220R 5% 0,5W
4250	4822 051 20008	0R Jumper 0805
4260	4822 051 20008	0R Jumper 0805
4261	4822 051 20008	0R Jumper 0805
4263	4822 051 20008	0R Jumper 0805

RESISTORS

4264	4822 051 20008	0R Jumper 0805
4265	4822 051 20008	0R Jumper 0805
4333	4822 051 20008	0R Jumper 0805
4334	4822 051 20008	0R Jumper 0805
4335	4822 051 20008	0R Jumper 0805
4510	4822 051 20008	0R Jumper 0805
4512	4822 051 20008	0R Jumper 0805
4513	4822 051 20008	0R Jumper 0805
4560	4822 051 20008	0R Jumper 0805
4561	4822 051 20008	0R Jumper 0805
4562	4822 051 20008	0R Jumper 0805
4563	4822 051 20008	0R Jumper 0805
4564	4822 051 20008	0R Jumper 0805
4565	4822 051 20008	0R Jumper 0805
4566	4822 051 20008	0R Jumper 0805
4567	4822 051 20008	0R Jumper 0805
4568	4822 051 20008	0R Jumper 0805
4569	4822 051 20008	0R Jumper 0805
4570	4822 051 20008	0R Jumper 0805
4571	4822 051 20008	0R Jumper 0805
4572	4822 051 20008	0R Jumper 0805
4573	4822 051 20008	0R Jumper 0805

COILS & FILTERS

5331	4822 157 11837	0,36µH 10%
5332	4822 157 11837	0,36µH 10%
5333	4822 157 11837	0,36µH 10%
5334	4822 157 11837	0,36µH 10%
5550	4822 157 10686	0,47µH
5551	4822 157 10686	0,47µH
5552	4822 157 62552	2,2µH

DIODES

6250	4822 130 31878	1N4003G
6251	4822 130 31878	1N4003G
6252	4822 130 31878	1N4003G
6253	4822 130 31878	1N4003G
6254	4822 130 31878	1N4003G
6255	4822 130 31878	1N4003G
6259	4822 130 31878	1N4003G
6260	4822 130 31878	1N4003G
6261	4822 130 31878	1N4003G
6265	4822 130 31878	1N4003G
6269	4822 130 30621	1N4148
6270	4822 130 30621	1N4148
6271	4822 130 34278	BZX79-B6V8
6272	4822 130 61219	BZX79-B10
6275	3198 010 53380	BZX79-B3V3

ELECTRICAL PARTSLIST - COMBI BOARD

DIODES

6331	4822 130 30621	1N4148
6332	4822 130 30621	1N4148
6333	4822 130 30621	1N4148
6334	9337 127 10673	BZX55-B11
6500	4822 130 30621	1N4148
6550	3198 010 53380	BZX79-B3V3

TRANSISTORS & IC

7250	9322 139 24687	BDW94CFP
7251	4822 130 60511	BC847B
7252	4822 130 60511	BC847B
7254	5322 130 44593	BC369
7255	4822 130 60511	BC847B
7256	4822 130 41246	BC327-25
7257	4822 130 41246	BC327-25
7258	4822 130 41246	BC327-25
7259	4822 130 60511	BC847B
7260	5322 130 60845	BC807-25
7261	4822 130 60511	BC847B
7330	9322 133 18682	AN7125P
7331	4822 130 60373	BC856B
7332	4822 130 60373	BC856B
7333	4822 130 60511	BC847B
7335	9322 143 35687	BDW93CFP
7500	4822 209 10264	HEF4069UBP
7501	4822 130 44568	BC557B
7502	4822 130 44568	BC557B
7503	4822 130 44568	BC557B
7504	4822 130 44568	BC557B
7505	4822 130 60511	BC847B
7506	4822 130 60511	BC847B
7507	4822 130 60511	BC847B
7508	4822 130 60511	BC847B
7509	4822 130 60511	BC847B
7510	4822 130 60511	BC847B
7511	4822 130 60511	BC847B
7512	4822 130 60511	BC847B
7513	4822 130 60511	BC847B
7514	4822 130 60511	BC847B
7550	4822 130 42804	BC817-25
7551	4822 209 10263	HEF4052BP
7552	5322 209 10421	HEF4094BP
7553	9322 003 63676	TBC327-40
7555	4822 130 60511	BC847B
7556	4822 130 60511	BC847B

Note: Only these parts mentioned in the list are normal service parts.

ELECTRICAL PARTSLIST - LED BOARD

RESISTORS

3901	4822 051 20121	120R 5% 0,1W
3902	4822 051 20121	120R 5% 0,1W
3903	4822 051 20121	120R 5% 0,1W
3904	4822 051 20121	120R 5% 0,1W

DIODES

6901	4822 130 11589	LTL-1CHAE
6902	4822 130 11589	LTL-1CHAE
6903	4822 130 11589	LTL-1CHAE
6904	4822 130 11589	LTL-1CHAE
6905	4822 130 11589	LTL-1CHAE
6906	4822 130 11589	LTL-1CHAE
6907	4822 130 11589	LTL-1CHAE
6908	4822 130 11589	LTL-1CHAE
6909	4822 130 11589	LTL-1CHAE
6910	4822 130 11589	LTL-1CHAE
6911	4822 130 11589	LTL-1CHAE
6912	4822 130 11589	LTL-1CHAE

ELECTRICAL PARTSLIST - MAINS BOARD AND MISCELLANEOUS

1025	4822 276 13963	CD DOOR SWITCH
1600	⚠ 4822 272 10269	VOLTAGE SELECTOR (/21 only)
1601	⚠ 4822 071 53152	FUSE 3,15A
1602	⚠ 4822 071 53152	FUSE 3,15A
1603	⚠ 4822 071 53152	FUSE 3,15A
3600	4822 053 21106	10M 5% 0,5W
5600	⚠ 4822 157 11832	MAINS FILTER 400µH 3A
5601	⚠ 3140 118 32430	MAINS TRANSF. 230V
5601	⚠ 3140 118 32410	MAINS TRANSF. 120/230V
5601	⚠ 3140 118 32420	MAINS TRANSF. 120V
8000	3140 110 21250	FFC FOIL 16P 220mm AD
8001	3140 110 21220	FFC FOIL 6P 220mm AD
8005	3140 110 21210	FFC FOIL 6P 220mm AD
8003	3140 110 21190	FFC FOIL 6P 140mm AD
8007	3140 110 21240	FFC FOIL 8P 180mm AD
8008	⚠ 4822 321 10781	MAINS CORD SET (/21 /22)
8008	⚠ 4822 321 10971	MAINS CORD SET (/30)
8008	⚠ 2422 070 98122	MAINS CORD SET (/37)
8800	4822 320 12178	FFC FOIL 15P 65mm